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 advisor, 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 Director for Affirmative Action, 405E Andy Holt Tower, 974-2498. Charges of violation of the above policy should also be directed to the Office of the Director for Affirmative Action.
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calendar for 1985-86</td>
<td>4</td>
</tr>
<tr>
<td>Knoxville Administration</td>
<td>6</td>
</tr>
<tr>
<td>Board of Trustees</td>
<td>7</td>
</tr>
<tr>
<td>University Administration</td>
<td>7</td>
</tr>
<tr>
<td>Map of Knoxville Campus</td>
<td>8</td>
</tr>
<tr>
<td>The University</td>
<td></td>
</tr>
<tr>
<td>Colleges and Schools</td>
<td>10</td>
</tr>
<tr>
<td>Historical Background</td>
<td>10</td>
</tr>
<tr>
<td>Academic Policies and Costs</td>
<td></td>
</tr>
<tr>
<td>Admission to the University</td>
<td>11</td>
</tr>
<tr>
<td>College Association</td>
<td>14</td>
</tr>
<tr>
<td>Academic Regulations</td>
<td>16</td>
</tr>
<tr>
<td>Undergraduate Retention Standards</td>
<td>20</td>
</tr>
<tr>
<td>Degree Requirements</td>
<td>21</td>
</tr>
<tr>
<td>Fees and Expenses</td>
<td>23</td>
</tr>
<tr>
<td>Housing</td>
<td>25</td>
</tr>
<tr>
<td>Student Financial Aid</td>
<td>25</td>
</tr>
<tr>
<td>Scholarships and Grants</td>
<td>26</td>
</tr>
<tr>
<td>Student Loans</td>
<td>26</td>
</tr>
<tr>
<td>Student Employment</td>
<td>27</td>
</tr>
<tr>
<td>Honors and Awards</td>
<td>31</td>
</tr>
<tr>
<td>Campus and Honorary and Professional Fraternities</td>
<td>33</td>
</tr>
<tr>
<td>Student Affairs and Services</td>
<td></td>
</tr>
<tr>
<td>Career Planning and Placement Service</td>
<td>35</td>
</tr>
<tr>
<td>Handicapped Student Services</td>
<td>35</td>
</tr>
<tr>
<td>Educational Assistance Program</td>
<td>35</td>
</tr>
<tr>
<td>Black Cultural Center</td>
<td>35</td>
</tr>
<tr>
<td>Minority Student Affairs</td>
<td>35</td>
</tr>
<tr>
<td>Student Orientation Office</td>
<td>35</td>
</tr>
<tr>
<td>Student Conduct Office</td>
<td>35</td>
</tr>
<tr>
<td>Center for International Education</td>
<td>35</td>
</tr>
<tr>
<td>Women's Center</td>
<td>36</td>
</tr>
<tr>
<td>Intercollegiate Athletics for Women</td>
<td>36</td>
</tr>
<tr>
<td>Student Health Service</td>
<td>36</td>
</tr>
<tr>
<td>Student Counseling Services Center</td>
<td>36</td>
</tr>
<tr>
<td>Student Rights and Responsibilities</td>
<td>36</td>
</tr>
<tr>
<td>Religious Resources</td>
<td>36</td>
</tr>
<tr>
<td>Student Organizations</td>
<td>36</td>
</tr>
<tr>
<td>Ombudsman Office</td>
<td>36</td>
</tr>
<tr>
<td>Division of International Education</td>
<td>36</td>
</tr>
<tr>
<td>Writing Laboratory</td>
<td>37</td>
</tr>
<tr>
<td>Hearing and Speech Services</td>
<td>37</td>
</tr>
<tr>
<td>Services to the Physically Disabled</td>
<td>37</td>
</tr>
<tr>
<td>Vehicle Operation and Parking</td>
<td>37</td>
</tr>
<tr>
<td>Cultural Opportunities</td>
<td>37</td>
</tr>
<tr>
<td>Athletics</td>
<td>38</td>
</tr>
<tr>
<td>Student Publications</td>
<td>39</td>
</tr>
<tr>
<td>Learning Research Center</td>
<td>39</td>
</tr>
<tr>
<td>Student Government Association</td>
<td>39</td>
</tr>
<tr>
<td>Colleges, Schools, and Other Academic Units</td>
<td></td>
</tr>
<tr>
<td>Graduate Studies</td>
<td>51</td>
</tr>
<tr>
<td>College of Law</td>
<td>51</td>
</tr>
<tr>
<td>College of Veterinary Medicine</td>
<td>51</td>
</tr>
<tr>
<td>The Graduate School</td>
<td>51</td>
</tr>
<tr>
<td>Graduate School of Biomedical Sciences</td>
<td>51</td>
</tr>
<tr>
<td>Comparative and Experimental Medicine</td>
<td>53</td>
</tr>
<tr>
<td>Energy, Environment and Resources Center</td>
<td>53</td>
</tr>
<tr>
<td>Graduate School of Library and Information Science</td>
<td>53</td>
</tr>
<tr>
<td>Life Sciences</td>
<td>53</td>
</tr>
<tr>
<td>Graduate School of Planning</td>
<td>53</td>
</tr>
<tr>
<td>Graduate School of Social Work</td>
<td>54</td>
</tr>
<tr>
<td>Space Institute</td>
<td>54</td>
</tr>
<tr>
<td>Transportation Center</td>
<td>54</td>
</tr>
<tr>
<td>Water Resources Research Center</td>
<td>54</td>
</tr>
<tr>
<td>Institute of Agriculture</td>
<td>55</td>
</tr>
<tr>
<td>College of Agriculture</td>
<td>56</td>
</tr>
<tr>
<td>School of Architecture</td>
<td>71</td>
</tr>
<tr>
<td>College of Business Administration</td>
<td>76</td>
</tr>
<tr>
<td>College of Communications</td>
<td>87</td>
</tr>
<tr>
<td>Division of Continuing Education, Knoxville</td>
<td>92</td>
</tr>
<tr>
<td>College of Education</td>
<td>94</td>
</tr>
<tr>
<td>School of Health, Physical Education, and Recreation</td>
<td>108</td>
</tr>
<tr>
<td>College of Engineering</td>
<td>116</td>
</tr>
<tr>
<td>College of Home Economics</td>
<td>135</td>
</tr>
<tr>
<td>College of Liberal Arts</td>
<td>146</td>
</tr>
<tr>
<td>College of Nursing</td>
<td>211</td>
</tr>
<tr>
<td>Air Force Aerospace Studies</td>
<td>214</td>
</tr>
<tr>
<td>Military Science</td>
<td>215</td>
</tr>
<tr>
<td>Public Service and Continuing Education</td>
<td>218</td>
</tr>
<tr>
<td>University Library</td>
<td>221</td>
</tr>
<tr>
<td>University Computing Center</td>
<td>222</td>
</tr>
<tr>
<td>Index</td>
<td>223</td>
</tr>
</tbody>
</table>
### ACADEMIC CALENDAR FOR 1985-86

#### Summer Quarter, 1985
- **June 18** Orientation (Transfer and Freshmen)
- **June 19** Registration First or All Terms
- **June 20** Classes Begin
- **July 4** Independence Day (No Classes)
- **July 24** Classes End, First Term
- **July 22-24** Registration, Second Term
- **July 28** Classes Begin, Second Term
- **August 27** Classes End
- **August 29** Commencement

#### Fall Quarter, 1985
- **September 18** Orientation (Transfer)
- **September 19** Orientation (Freshmen)
- **September 18-19** Upperclass and Graduate Registration
- **September 19-20** Freshmen and Transfer Registration
- **September 23** Classes Begin
- **November 2** Homecoming (No Classes)
- **November 27** Classes End
- **November 28-30** Thanksgiving (No Classes)
- **December 2** Study Day
- **December 3-6** Final Evaluation Period (Alternative Period)
- **December 10** Commencement

#### Winter Quarter, 1986
- **January 6** Orientation
- **January 6-7** Registration
- **January 8** Classes Begin
- **January 20** Martin Luther King Birthday (No Classes)
- **March 14** Classes End
- **March 15** Study Day
- **March 17-20** Final Evaluation Period (Alternative Period)
- **March 22** Commencement

#### Spring Quarter, 1986
- **March 30** Easter
- **March 31** Orientation
- **March 31-April 1** Registration
- **April 2** Classes Begin
- **June 4** Classes End
- **June 5** Study Day
- **June 6-10** Final Evaluation Period (Alternative Period)
- **June 13** Commencement
Summer Quarter, 1986
June 18 Orientation (Freshmen and Transfer)
June 19 Registration First or All Terms
June 20 Classes Begin
  Drop Deadlines, First Term - See Timetable
July 4 Independence Day (No Classes)
July 24 Classes End, First Term
July 22-24 Registration, Second Term
July 25 Classes Begin, Second Term
  Drop Deadlines, Full Term and Second Term - See Timetable
August 27 Classes End
August 29 Commencement

Fall Quarter, 1986
September 22 Orientation (Transfer)
September 23 Orientation (Freshmen)
September 22-23 Upperclass and Graduate Registration
September 23-24 Freshmen and Transfer Registration
September 25 Classes Begin
  Drop Deadlines - See Timetable
November 8 Homecoming (No Classes)
November 27-29 Thanksgiving (No Classes)
December 4 Classes End
December 5 Study Day
December 6-10 Final Evaluation Period (Alternative Period)
December 12 Commencement

Winter Quarter, 1987
January 5 Orientation
January 5-6 Registration
January 7 Classes Begin
  Drop Deadlines - See Timetable
January 19 Martin Luther King Birthday (No Classes)
March 13 Classes End
March 14 Study Day
March 16-19 Final Evaluation Period (Alternative Period)
March 21 Commencement

Spring Quarter, 1987
March 26 Orientation
March 26-27 Registration
March 28 Classes Begin
  Drop Deadlines - See Timetable
April 17-18 Easter (No Classes)
June 3 Classes End
June 4 Study Day
June 5-9 Final Evaluation Period (Alternative Period)
June 12 Commencement
**Administrative Officers**

**Chancellor**, Jack E. Reese, A.B., A.M., Ph.D.

Executive Assistant to the Chancellor, Donald R. Eastman III, A.B., Ph.D.

**Provost**, George W. Wheeler, B.S., M.S.; Ph.D.

Vice Provost, Hardy Liston, Jr., B.S., M.E.A.

Vice Provost, Ralph V. Norman, Jr., A.B., B.D., M.A., Ph.D.

Vice Provost and Dean of Graduate Studies, Clarence W. Minkel, B.A., M.A., Ph.D.

Vice Provost for Research, Thomas C. Collins, B.S., M.S., Ph.D.

Executive Vice Chancellor for Business, Planning and Finance, Homer S. Fisher, B.S., M.B.A.

Associate Executive Vice Chancellor for Business, Betsey B. Creekmore, A.B., M.A., M.A.L.S.

**Acting Vice Chancellor** for Student Affairs, Philip A. Scheurer, B.A., M.S.

Vice Chancellor for Development and Alumni Affairs, Jack E. Williams, B.S.

Associate Vice Chancellor for Student Affairs and Dean of Student Activities, Philip A. Scheurer, B.A., M.S.

**General Administrative Officers**

**Athletics**, Director, George R. Woodruff, B.S.

**Finance**, Director, Harold B. Whitehead, B.S., C.P.A.

**Physical Plant**, Director, John C. Parker, B.S.

**Public Relations**, Director, David H. Lauver, B.S.

**Research**, Dean, Marla Peterson, B.A., M.A., Ph.D.

**Admissions and Records**, Dean, Gerald Bowker, B.A., M.A.

**Career Planning and Placement Service**, Director, Robert Greenberg, B.A., M.S., Ed.D.

**International Student Affairs**, David C. Larsen, A.B., M.A., Ph.D.

**Intercollegiate Athletics for Women**, Director, Joan Cronan, B.S., 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**

**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

Acting Dean, Kelly Leiter, B.A., M.A., Ph.D.

Division of Continuing Education

Dean, Joseph P. Goddard, B.S., M.S., Ed.D.

College of Education

Dean, Richard Wisniewski, B.S., M.E.D., Ed.D.

College of Engineering

Dean, William T. Snyder, B.S., M.S., 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.

Graduate 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, James A. Spencer, B.S., M.C.P.

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, Gilbert H. Fredrick, B.A., M.A., 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., M.S., Ph.D.

Other Educational and Public Service Units

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 Tennessee Higher Education Commission

From Congressional Districts

<table>
<thead>
<tr>
<th>District</th>
<th>Service Begins</th>
<th>Term Expires</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>1964</td>
<td>June 1, 1993</td>
</tr>
<tr>
<td>Second</td>
<td>1977</td>
<td>June 1, 1986</td>
</tr>
<tr>
<td>Third</td>
<td>1979</td>
<td>June 1, 1988</td>
</tr>
<tr>
<td>Fourth</td>
<td>1975</td>
<td>June 1, 1987</td>
</tr>
<tr>
<td>Fifth</td>
<td>1979</td>
<td>June 1, 1991</td>
</tr>
<tr>
<td>Sixth</td>
<td>1980</td>
<td>June 1, 1990</td>
</tr>
<tr>
<td>Seventh</td>
<td>1984</td>
<td>June 1, 1993</td>
</tr>
<tr>
<td>Eighth</td>
<td>1979</td>
<td>June 1, 1988</td>
</tr>
<tr>
<td>Ninth</td>
<td>1956</td>
<td>June 1, 1986</td>
</tr>
</tbody>
</table>

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

From Davidson County
Michael Graves 1984 June 1, 1993

From Hamilton County
Paul J. Kinser 1969 June 1, 1987

From Knox County
Ann Baker Furrow 1971 June 1, 1989
James A. Haslam, II 1960 June 1, 1989

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

From Weakley County
James F. Harrison 1981 June 1, 1990

Student Member
Melinda Stokes 1984 July 1, 1985

Officers of the Board
Lamar Alexander, Chairman
T.O. Lashlee, 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 and Research, 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., C.P.A.
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 and Continuing Education 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., C.P.A.
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., C.P.A.
Emeritus Vice President for Academic Affairs, Kenneth L. Knickerbocker, A.B., A.M., Ph.D.
Emeritus Treasurer, Brodie Baynes, B.S., C.P.A.
### Main Campus

- Administration Parking Garage (APG) G-9
- Alumni Hall (AH) B-8
- Alumni Memorial Auditorium-Gymnasium (GYM) D-10
- Andy Holt Avenue Apartments (AD) E-2
- Andy Holt Tower (AHT) F-10
- Anthropology Annex (ANT) E-12
- 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

### Agricultural Campus

- Agricultural Engineering Bldgs. (AE) K-3
- C.E. Brehm Animal Science Lab (ASB) 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) I-2
- McCord Hall (MC) I-1
- Morgan Hall (MH) J-2
- Plot Barn (PB) K-4
- Poultry Diagnostic Laboratory (PO) L-4
- Power Plant (PPL) I-3
- Printing and Supply (PR) 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 of Tennessee, Knoxville

### 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 (HPR) E-5
- Hearing & Speech Center (H&S) E-10
- Henson Hall (HH) C-6
- Hesler Biology Bldg. (H) C-10
- Hess Hall (HEH) D-6
- Hodges Undergraduate Library (UGL) C-8
- Hopecote (HO) D-5
- Hoskins (Main) Library (LIB) B-10
- Humanities & Social Sciences Bldg. (HSS) E-8
- Undergraduate Library
- Humes Hall (HUH) E-4
- Information Booth (I) E-8
- International House (IH) A-8
Continuing a tradition of service begun in 1794, The University of Tennessee's Knoxville campus carries out a unique mission in higher education in the Volunteer State. Leadership in graduate and professional studies, research and creative activity, and public service enriches selective undergraduate programs and defines UT Knoxville's distinctive identity as the state's "campus of excellence."

UTK Chancellor Jack Reese heads the campus, which offers a broad range of undergraduate, graduate, and professional degree programs. Among UT Knoxville's more than 25,000 students are men and women from every county in Tennessee, each of the 50 states, and more than 90 countries.

Faculty and staff are working constantly to enhance the quality of students' educational experiences. Because of its effectiveness in using information from student tests and surveys to improve teaching and service to students in 1984, UT Knoxville was the only university in the U.S. selected to receive an award by the National Council for Measurement in Education.

Development in graduate education has been accompanied by growth of major research programs, particularly in the field of energy, and expanded cooperation with Oak Ridge National Laboratory and the Tennessee Valley Authority.

The "Science Alliance" between UT Knoxville and ORNL is designated as the top priority in Tennessee's Centers of Excellence program for higher education. The most recent step taken to strengthen cooperative instructional and research activities is the Distinguished Scientist Program, designed to attract some of the nation's most eminent scientists to joint appointments at the two institutions.

Public service activities extend the utilization of the University's resources throughout the state. Continuing education programs respond to the needs of working adults who are seeking college degrees or preparing for career advancement by keeping up with the latest developments in their professional fields.

UTK students enjoy a wide variety of cultural activities. The Clarence Brown Theatre, named for the Hollywood director and UTK graduate and benefactor, is the home of one of the nation's most innovative theatre programs.

Libraries with more than 2 million volumes and volume-equivalents enhance an educational program dedicated to keeping pace with a changing society.

Additions and extensive alterations of Hodges Library will provide a new 350,000-square-foot main library in the heart of the campus. The new library will meet critical research space needs for students and faculty and incorporate the latest advances in computer and automation technology.

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.

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 oldest institutions of higher education in the nation. It was strictly non-sectarian 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. It is probable, though, that these first coeds were engaged in preparatory rather than collegiate study. The institution later restricted enrollment to men, but reestablished its coeducational status on a permanent basis in 1882.

In 1807 the institution began to widen the scope of its service area. During that year the State Legislature changed the institution's name to "East Tennessee College" and made it the recipient of one-half of the proceeds of the sale of land set aside by Congress for the support of colleges. In 1825 the present site at Knoxville, the 40-acre tract known as "The Hill," was acquired by East Tennessee College.

In 1840 the State Legislature changed the institution's name to "East Tennessee University." The Civil War forced the institution to close for a period; its buildings were used as a hospital for Confederate troops and were later occupied by Union troops. East Tennessee University reopened after the war, and from that time to the present the institution has enjoyed its most significant advances.

In 1869 East Tennessee University was selected by the State Legislature as Tennessee's Federal Land-Grant Institution, under terms of the Morrill Act passed by Congress in 1862. This designation enabled the University to broaden its offerings by establishing an Agricultural and Mechanical College. The new program was supported by an endowment resulting from the sale of land warrants received by Tennessee from the federal government.

Ten years later, in 1879, East Tennessee University was chosen by the State Legislature as Tennessee's State University, and its name was changed to "The University of Tennessee." By this act the University became pledged to the service and interest of the entire state. The state pledged to the University its own name and reputation, promising the institution a vital role in the progress of the state.
The University today 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 1911. The Memphis campus was established in 1900 as a private institution, Half-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 1915. A fourth primary campus was established at Chattanooga in 1949 with the merger of the University with the University of Chattanooga. The University's Nashville Center, established in 1947, was the fifth primary campus in 1971. UTN's academic programs were merged with those of Tennessee State University in 1979.

Agriculture Experiment Stations were established at Jackson, Spring Hill (Columbia), Springfield, Lewisburg, Crossville, Wartburg, Oak Ridge, Greeneville, and Grand Junction. The Division of Continuing Education, Knoxville, conducts evening classes, workshops and off-campus programs, conferences, and non-credit programs for the campus. The Agricultural Extension Service, with district offices at Jackson, Nashville, Cookeville, Chattanooga, Wartburg, Oak Ridge, Greeneville, and Knoxville, has agricultural extension 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.

The University 11
available only to students who have been accepted into a particular major. Non-majors may not be allowed to take such courses. A University student should contact the college with which association is desired to determine the latest admission form (of coursework required for the degree) at which association is possible. Ideally a University student will determine the college or school of choice and actively work toward association of that particular college.

SOURCES OF INFORMATION FOR PROSPECTIVE AND NEW UTK 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 booklets. 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;
2. the total of attempted college-level credit work at an accredited institution after graduation from high school 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 graduation. If any courses 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 as a part of the admission file. Students who have achieved a high school diploma through the General Education Development Test must have the GED scores sent.
2. Have the score report of the American College Testing Program (ACT) or the Scholastic Aptitude Test (SAT) sent by that organization to the Admissions Office. The score report is a necessary part of the application.

In order to be admitted to UTK freshmen applicants must meet the following criteria.

Tennessee Residents:

1. High School GPA of 2.75 or greater (on a 4.00 scale) and report of test scores; or
2. High School GPA of 2.40 or greater, and ACT composite score of 15 or more (composite SAT of 700); or
3. High School GPA of 2.00 or greater, and ACT composite score of 18 or more (composite SAT of 780).

If the high school GPA is less than 2.25 and the ACT composite is less than 18 (composite SAT less than 780), admission is denied.

An out-of-state applicant who is denied admission because the ACT composite score is below 18 or the HS GPA is less than 2.25 may make a written appeal of the decision to the Director of Admissions.

Out-of-State Residents:

1. High School GPA of 2.25 or greater, ACT composite score of 18 or greater (composite SAT of 780).
2. If the high school GPA is less than 2.25 and the ACT composite is less than 18 (composite SAT less than 780), admission is denied.

An out-of-state applicant who is denied admission because the ACT composite score is below 18 or the HS GPA is less than 2.25 may make a written appeal of the decision to the Director of Admissions.

Department of Admission's and Records has the prerogative to list on the minimum criteria for applicants who do not show high aptitude in certain scholastic skills but show other indications of ability to progress through UTK and earn a degree.

Advanced Placement Examinations

Freshmen admitted to UTK may receive credit on the basis of performance on one or more of 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 in high school 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 produce 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 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 credit coursework at one or more accredited institutions of higher learning must apply for admission as a transfer student. In addition to high school transcripts, a complete transcript of all work at each college or university attended should be sent by 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 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 20). Beginning Fall 1986, only those courses in which a grade of C or better was earned shall be eligible for transfer credit.

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 transferring to UTK, provided that such action is consistent with their educational goals.

In order to be considered for admission to UTK, a transfer applicant must have a transfer grade point average of 2.00 or better (on a 4-point scale).

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 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 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 subject matter covered, 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 transfers 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 their enrollment, stay continuously enrolled in the assigned courses until completion of all requirements, and should complete the requirements within the first year of continuous 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 that the student has satisfied all requirements for freshman composition 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 mone-

tary deposit prior to issuance of Form I-20 to secure a student visa. This deposit is credited to tuition and fees. The balance is remitted to the student at the begin-
ing of each quarter in 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 Interna-
tional 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.

Visiting Student Applicants

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

Visiting 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 only one quarter 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 visiting students, academic advising will be limited to information about courses in which the student enrolls. Such information is obtained from the department offering the course. Use of UTK courses in a visiting student’s degree program is a matter to be determined by the home institution, not by UTK. Visiting students must have the required background (prerequisites) and meet all other course requirements the same as any other student. Academic overloads will not be permitted.

Re-Entry Student Applicants

A re-entry student is one who has graduated from high school 3 years or more prior to making application for admission, if applying as a freshman, or who has not attended any college, university, or technical school and received course credit within 3 years preceeding application. Freshman re-entry students should submit an official transcript (from all institutions attended) to the Admissions Office and be interviewed by an admissions counselor or respond to a written questionnaire, as requested. ACT/SAT scores are not required for admission but may be needed for association with a college or a school. Transfer re-entry students should submit a high school transcript, transcript(s) of all previous college-level work, a goals state-

ment and be interviewed by an admissions counselor.

No applicant who has attended UTK will be considered a re-entry student. Former UTK students should follow readmission procedures as described on page 21 of this catalog.

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. 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 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 previous-

ly indicated transfer, admission, or college association requirements for admission to degree seeking status. No more than 30 quarter hours of 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 reason-
able and consistent with good educational practice. Thus, these requirements are not normally waived or modified for any appli-
cant, except as specifically noted. However, unusual circumstances sometimes exist. It is a potential student feels that some part of the requirements for the category sought should not apply as stated, that person should write 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 what changes in the stated 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 Admissions Office no later than August 15 for the fall quarter admission; December 1 for winter quarter admission; February 17 for spring quarter admission; and May 28 for summer quarter admission. Applications must be postmarked by these deadlines.

Applications for the Professional Interior Design program 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 appli-
cation for the spring quarter; enrollment is closed for the winter quarter. An applicant who is not accepted may be reconsidered if application is made for a future class.

Former students who have been dropped from the University for academic deficiency or disciplinary reasons must apply for read-
mission 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 quar-
ters) apply for readmission no later than three weeks prior to the first class of the quarter.

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 fees. The classification is determined by the Board of Trustees, with the intent that all public insti-
tutions 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 unattached student of college age may establish in-state classification by produ-
ing satisfactory evidence of Tennessee domicile with proof that the move to Ten-
sessee was not primarily for obtaining educational opportunities for themselves, dependents, or spouse. Forms and copies of the Regulations may be obtained from the Residency Clerk in the appropriate Admis-
sions Office - undergraduate, 320 Student Services Building; law, 112 Law Building; veterinary medicine, 320 Student Services Building. Additional appeals may be directed to the Fee Classification Coordinator, Room 320 Student Services Building.

Scholarship recipients and children of alumni are treated as in-state residents for the purpose of paying admissions criteria. However, such students will be required to pay out-of-state fees and tuition unless they can meet the in-state residency require-
ments stated above.

An out-of-state student completing one of the University's pre-professional programs (law, health services, veterinary medicine, etc. see p. 152) does not gain preferential priority in seeking admission to a profes-


sional program that is otherwise restricted primarily to Tennessee residents.

Special State and Federal Laws for Educational Purposes

AMERICAN HISTORY

Effective July 1, 1976 and afterwards, all students receiving a bachelor's degree must have completed one unit of American history on the high school level or nine quarter hours of collegiate American history in order to receive a bachelor's degree as required by the General Assembly of the State of Tennessee (Tennessee Code Annotated Section 49-325).

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 and admission to the University.

Inquiries concerning Title IX and Section 504 should be directed to the Director for Affirmative Action, 405-D Andy Holt Tower, Knoxville, TN 37996-0144, 974-2498.

Charges of violation of the above policy should also be directed to the Director for Affirmative Action.

SENIOR AND DISABLED PERSONS

Persons 60 years of age or older and/or 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 or totally disabled persons who are domiciled in Tennessee may audit courses 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 provides 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 to third parties includes directory information, such as contained in the campus telephone book and sports brochures. Such information includes name, address, telephone number, date and place of birth, classification, college, major, dates of attendance, degrees and awards, the most recent previous 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.

ACADEMICALLY TALENTED HIGH SCHOOL STUDENTS

Academically talented/gifted students enrolled in grades 9, 10, 11, or 12 in public or private high schools in Tennessee may, with the recommendation and approval of the high school principal and appropriate higher education institution personnel, enroll in and receive regular college degree credit from a Tennessee postsecondary institution if such a student has a grade-point average equivalent to 3.2 on a 4.0 maximum basis and if such placement is a part of the student's planned Individual Educational Placement (IEP) as established by the multi-disciplinary team process.

SOCIAL SECURITY NUMBER USE

The University of Tennessee, Knoxville, requires assignment of an individual student number for internal identification of each student's record. The University began using the social security number as the student identification number on 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 for conducting business about their own education, 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 required that all students preparing for a teaching career in Tennessee must 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 one unit of algebra and 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 entering a B.S. degree 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 provision of 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 (SAT 1100) or above are admitted.
2. Applicants with a total of 55 or above (using the formula of the high school grade point average times 10 plus the ACT composite score) are admitted provided their ACT composite is at least 20 (SAT 490).
3. Applicants with an ACT composite score of 16 (SAT 720) 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 2.3. 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 2240-50-60 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 (attempted) in order to maintain "full status" in the program. Delinquent students will be put on "temporary status" for one quarter. These students will have one quarter to raise the overall GPA to a 2.3 or have a minimum of 2.3 on each quarter's work until the overall average is raised to 2.3. If GPA is not brought up to a 2.3, the student will be dropped from the architecture program.

HIGH SCHOOL CREDITS:

Students who seek School of Architecture association in candidacy for the Bachelor of Architecture must offer the following units: Algebra 2, Trigonometry .5, Geometry 1, Science or Humanities, 4.5.
College of Business Administration

The College of Business Administration encourages association at the earliest possible date for those with the proper background and qualifications. The minimum requirement is that students be in association with the college for the last 45 quarter hours of coursework. Association takes place at the lower-division (or pre-major) level and leads to completion of the upper-division (or major) level. Association at the lower-division level does not guarantee acceptance into a major at the upper-division level.

I. ASSOCIATION AT THE LOWER DIVISION LEVEL

A. Entering Freshmen. Must have completed at the high school level two units of algebra and one unit of geometry. A unit of advanced mathematics or trigonometry may be offered in lieu of the second unit of algebra or the unit of geometry.

B. Transfers from other UTK Colleges

1. Meet CBA high school distribution requirements (see IA above).

2. Meet requirements for association for transfers from other UTK Colleges as stated in IB2.

3. Students denied association may wish to seek association with other UTK Colleges.

Evaluation of Progress. The academic progress of those admitted to the lower-division programs of the College is evaluated periodically (e.g., on completion of 45 quarter hours of coursework) for those failing to make acceptable progress toward meeting the standards for progression to upper-division programs will be encouraged to seek alternative educational opportunities. It is expected that students will follow the curricula prescribed in the CBA portion of the Undergraduate 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 the degree or candidacy for the degree 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 in nature and include consideration of overall grade point average, grades earned in courses required in the lower-division curricula of the College, the seriousness of purpose and interest in the College programs, as exemplified by an orderly and orderly progress through the prescribed curriculum without abuse of withdrawal and course repeat privileges. 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. Within 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):

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting 2110-29-301</td>
<td>9</td>
</tr>
<tr>
<td>Computer Science elective</td>
<td>8</td>
</tr>
<tr>
<td>Economics 2510-20</td>
<td>8</td>
</tr>
<tr>
<td>English 1010 or 1011; 1020; 1031 or 1032 1033</td>
<td>9</td>
</tr>
<tr>
<td>Mathematics 1406-50-50</td>
<td>12</td>
</tr>
<tr>
<td>Statistics 2100</td>
<td>3</td>
</tr>
</tbody>
</table>

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 of progression may apply for association with 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 advanced registration date for the next quarter. It is noted 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 association, 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 completion of the additional 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 coursework. 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 pre-majors. They may apply for progression to a major degree program after they pass typing and spelling proficiency tests and attain a score of 70 percent or better on a College Grammar Test 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

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 and attain a score of 70 percent or better on a College Grammar Test before enrolling 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

Communications students must earn at least a C grade in all College of Communications courses that fulfill graduation and progression requirements.

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 multiple 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**

The College of Engineering grants and encourages association at the time of admission as a University student, since students associated with the college have priority for registration in courses offered by the college. At the time of association with the college, a student makes a decision as to his/her major and an advisor will be assigned from that department. The College has no formal Advising Center as does Liberal Arts or Business Administration.

**REQUIREMENTS FOR FRESHMAN ASSOCIATION**

1. Applicants with an ACT composite score of 23 (SAT 940) or above are associated.
2. Applicants presenting a combined score of 22 (SAT 840) or above are associated. 
3. In addition to the above guidelines, freshmen must present the following high school credits:
   - Two units of algebra;
   - One unit of geometry;
   - One-half unit of trigonometry (may be included in another math course);
   - One unit of physics or chemistry.

International freshmen applicants are reviewed by representatives of the College of Engineering and the Admissions Office. The decision for international students is based upon the academic record, English language proficiency, and the number of international students from the applicant's home country already in the college.

**TRANSFER STUDENTS FROM OUTSIDE UTK**

All transfer applicants—Tennessee residents, out-of-state students and international students—are reviewed by a College Association Committee prior to an Association decision, regardless of transfer GPA. This committee normally is composed of the Associate Dean for Academic Affairs of the College and the Head of the Department with which Association is desired. Factors considered in the decision include:

1. Overall academic performance in previous college work;
2. Incidence of withdrawals, incompletes, or other evidence of problems interfering with orderly academic progress;
3. The level of prior interest in engineering, as evidenced by the kinds of courses taken and institutions attended;
4. A statement of educational goals, which all transfer students are encouraged to submit as part of their admission to UTK; and
5. The restrictions on space and staff in the department applied for.

**TRANSFER STUDENTS FROM WITHIN UTK**

Any UTK student desiring association with one of the departments of the College of Engineering should go to the departmental office for the desired major. An interview with the department head or his designee is held, with the major items of consideration being the same as for external transfer students. If association is granted, a College Major/Advisor Change Form is processed by the department to officially change the student's academic home.

**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. These 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
   - Freshmen with composite ACT score of 18 (SAT 780) and school cumulative GPA of 2.25 or above
   - Transfers from other departments and colleges within UTK having a composite ACT of 18 (SAT 780) and high school cumulative GPA of 2.25 or above
2. Admission by departmental review
   - Transfers not meeting automatic admission criteria: college GPA and high school GPA will be evaluated; composite ACT will be considered if available.
   - Schedule for admission by departmental review
     - Transfers within UTK—each quarter, 2 weeks before end of quarter
     - Transfers outside UTK—twice a year, November 1 and March 1

**COORDINATED UNDERGRADUATE PROGRAM IN DIETETICS**

1. Completion of freshman and sophomore courses or equivalents as listed on page 139 of this catalog.
2. An overall GPA of 2.2 or above
3. Personal interview
4. Recommendations from faculty and/or employer

**College of Liberal Arts**

The College of Liberal Arts grants and encourages association of eligible students for all programs at the time of admission to the University. The minimum requirement is that students be in association with the college for the last 45 quarter hours of coursework. To be eligible for association a student must:

1. Have completed a minimum of two years (2 units) of study in high school in one foreign language. Deficiency may be removed by completing one year of study at the college level or by passing a proficiency examination. Beginning in Fall 1987, no course work completed in order to satisfy an association requirement in foreign language may be used to satisfy graduation requirements.
2. Have completed one unit of algebra and one unit of geometry (or two units of algebra) in high school. As of Fall 1987, two units of algebra and one unit of geometry. Deficiency may be removed by obtaining a score of 22 or above on the mathematics portion of the ACT; by passing a mathematics examination administered by the mathematics department; or by passing an appropriate non—credit course offered through the Evening School. Association for the Bachelor of Science in Chemistry requires at least 1.5 units of algebra and one unit of geometry. The two-year Pre-Pharmacy, Pre-Nursing, and Allied Health Programs have the basic mathematics requirement but no language requirements.

Students who desire to associate with Liberal Arts should ensure that they have an advisor in the college whether or not they meet these requirements. (Go to the Liberal Arts Advising Center.)

**College of Nursing**

The minimum requirement is that students be in association with the College of Nursing for the last 45 quarter hours of coursework. The College of Nursing has a two-fold selection process:

1. Entering freshmen are selected on the basis of a composite ACT score of 18 (SAT 780) and a minimum high school GPA of 2.50.
2. Students must petition to progress to upper-division nursing courses. This petition must be completed during the sophomore year by the fifth class day of Winter Quarter. The minimum requirement for progression to upper-division courses is completion of lower-division requirements with a grade of C. However, since the college has limited clinical facilities available in the community, the college GPA is used as the selection criterion. The cut-off varies from year to year but generally will be found in the 2.80 to 3.00 range.

Transfer and change of major students must apply to the college by March 1 if they intend to begin upper-division nursing courses in the Fall. The cut-off GPA for these students is generally 3.00. Students who have a lower overall GPA but have shown significant improvement in lower-division courses required by the College of Nursing will have this partial GPA weighted more heavily in the selection process.

**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 number of quality points the student has accumulated at UTK...
by the number of quarter hours the student has attempted at UTK, not including hours for which grades of N, NC, P, S, SI, and W have been received.

Undergraduate Grades:  

- SATISFACTORY/NO CREDIT GRADING  
- graded the student to venture beyond the limits in a following section of this catalog, entitled Regulations concerning withdrawal from which a student has officially with- 

GRADE POINT AVERAGE  

The following grades carry 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 Commit- 

WRITING COMPETENCE  

The faculty of all colleges expect students to communicate effectively in standard writ- 

WRITING DEFICIENCY  

The faculty of all colleges expect students who have made the necessary improve-

REPEATING COURSES  

For all courses taken prior to and during an undergraduate student’s first 45 quarter hours (attempted) of collegiate study, only the last quality point in the course will be counted in computing the grade point average. These courses must be repeated before a student attempts 90 quarter hours in order to be eligible for this policy. For all courses taken beyond the 45 quarter hour provision, all grades in all hours will be included when computing the grade point average.  

GRADUATING SENIOR PRIVILEGES  

A senior who fails one subject during the quarter of intended graduation has the privi-

GRADUATE SCHOOL GRADES  

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

A (4 quality points per quarter hour), superior performance.
B+ (3.5 quality points per quarter hour), better than satisfactory performance.
B (3 quality points per quarter hour), satisfactory performance.
C+ (2.5 quality points per quarter hour), less than satisfactory performance.
C (2 quality points per quarter hour), performance work is below the standard expected of graduate students.
D (1 quality point per quarter hour), clearly unsatisfactory performance and cannot be used to satisfy degree requirements.
F (no quality points), extremely unsatisfactory performance and cannot be used to satisfy degree requirements.
2. Apply to the desired school or college as programs, and admission requirements are met.

3. Be accepted by the school or college, with 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 courses listed in Table I 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 options within each college or school. Counseling in this manner does not imply or guarantee association.

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 doubt there are aspects of their originally chosen field for which they are unsuited. The objective of the academic advising system 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 into 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 policies and requirements are followed in the colleges and various options within each college or school are 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 doubt there are aspects of their originally chosen field for which they are unsuited. The objective of the academic advising system 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 into 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. Collegewhich have limited or competitive enrollment policies are notified. 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 meet the association requirements at the same time (regardless of reason) are advised by the College of Liberal Arts Advising Center, 220 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 the 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 advisors, and departmental offices, 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 registration.

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) 974-6087.

Registration

Dates for orientation and registration are announced to new transfer and freshman students when the Certificate of Admission is issued. Graduate students are instructed when 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 contact the Admissions Office, College of Law. Students enrolled in that college and in the College of Veterinary Medicine will be notified by the University’s registration date changes unless specified differently by the college. Evening School students should contact the University Evening School for registration times.

REQUIREMENTS FOR REGISTRATION OF ADMITTED STUDENTS

Medical History. Though a physical examination is not required, a Medical History
DROPPING COURSES

There are three drop deadlines at UTK prior to which students may withdraw from courses. Consult the current timetable for announced calendar dates. For all first quarter undergraduate students, in all colleges, the drop deadline is 22 calendar days after the beginning of classes. After completions of the first quarter of undergraduate study, students must observe the following drop deadlines. For all courses offered in the College of Liberal Arts, Education and Nursing, the drop deadline is 8 calendar days after the beginning of classes. For all courses offered in the Colleges of Agriculture, Business Administration, Communications, Engineering, Home Economics, Veterinary Medicine, and the School of Architecture, the drop deadline is 8 calendar days after the beginning of classes. The exceptions to these deadlines are summer and other special sessions. Students should consult the current timetable for summer quarter drop deadlines.

Any course may be dropped with a W (withdrawal) before the drop deadline specified above. Students may enroll for a maximum number of 15 credit hours each quarter as specified by the college or school in which the student is enrolled. It is the responsibility of the student to make their spaces available to other students. Students may 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 prerequisite and corequisite requirements are met when registering for courses which have such restrictions.

Changes in Registration

ADDITION 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 withdraw from courses. Consult the current timetable for announced calendar dates. For all first quarter undergraduate students, in all colleges, the drop deadline is 22 calendar days after the beginning of classes. After completions of the first quarter of undergraduate study, students must observe the following drop deadlines. For all courses offered in the College of Liberal Arts, Education and Nursing, the drop deadline is 8 calendar days after the beginning of classes. For all courses offered in the Colleges of Agriculture, Business Administration, Communications, Engineering, Home Economics, Veterinary Medicine, and the School of Architecture, the drop deadline is 8 calendar days after the beginning of classes. The exceptions to these deadlines are summer and other special sessions. Students should consult the current timetable for summer quarter drop deadlines.

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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 ACT scores and 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, recitation, or examination. They receive no credit. They may not take part in laboratory or field work. An audited 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 portion of the Undergraduate or Graduate Change of Registration 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.

**Minimum Class Size**

An undergraduate course will not normally be given for fewer than ten students except by permission of the Provost. 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 classroom for a special reason must obtain the consent of the instructor.

It is the prerogative of the individual instructor to set the attendance requirements for a particular class. This means, for example, that an instructor in Freshman English may state in a syllabus how many absences are allowed before a student receives a grade of No Credit.

**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.

**Progression Requirements**

As shown elsewhere in this catalog, various academic programs have progression requirements. Detailed information on meeting these requirements is available from the individual units which have such academic progress requirements. Students are responsible for applying for progression and for meeting all prescribed conditions. Students who cannot meet progression requirements will be reassigned to University Student Status, and will be advised by the Liberal Arts Advising Center.

Students in programs not having progression requirements are subject only to the general academic retention standards described above.

**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.

**Classification of Students**

**QUARTER HOURS PASSED**

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Architecture</th>
<th>Programs</th>
<th>Law</th>
<th>Veterinary</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>0-47.9</td>
<td>0-44.9</td>
<td>0-44.9</td>
<td>0-57.9</td>
</tr>
<tr>
<td>Second</td>
<td>48-95.9</td>
<td>45-89.9</td>
<td>45-84.9</td>
<td>58-142.9</td>
</tr>
<tr>
<td>Third</td>
<td>96-143.9</td>
<td>90-134.9</td>
<td>85-126</td>
<td>143-up</td>
</tr>
<tr>
<td>Fourth</td>
<td>144-191.9</td>
<td>135-up</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fifth</td>
<td>192-up</td>
<td></td>
<td></td>
<td></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 complete 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 prior to admission or readmission to UTK will result in the student's being dropped from the University and may not make application for readmission for three academic quarters.

**Academic Second Opportunity**

As an aid to the serious re-entry student, the following policy regarding the treatment of previous college-level academic work is available. An undergraduate student who has not taken any college-level credit courses for three calendar years or more prior to admission or readmission to UTK may petition for Academic Second Opportunity. If granted, all previous academic work will remain on the permanent record, but the grades for such work will not be used in the computation of the grade point average or in the determination of good standing for retention purposes.

Prior courses in which a 'C' grade or better has been earned may be used to meet major, distribution, and graduation requirements; the previous grades will be changed to a Satisfactory (S) grade. At least 90 hours of letter grades (A-F) must be earned after admission or 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 Office of the Provost.

**Standards**

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 any subsequent quarter before 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.
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. Transfer students must apply for readmission no later than March 6, for spring quarter, 1985, May 30 for summer quarter, 1985, and no later than August 15 for fall quarter, 1985.

A student who has been dropped academically must make application for readmission. Readmission is not automatic. Application must be made no later than February 13, for spring quarter, 1985, May 9 for summer quarter, 1985, and no later than August 19, for fall quarter, 1985. 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.

Former 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. Quarter hours attempted are used only for determining the minimum acceptable level for the grade point average. Satisfactory/no credit hours are included 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, 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 readmission status.

F. To register for credit courses in any branch, center, or division of the University, Knoxville campus (except correspondence courses), a student must meet the readmission 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 very 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.

Program Assessment and Improvement Through Student Evaluation

In order for the University to assess and improve its academic programs, periodic measurements of student perceptions and intellectual growth must be obtained. As a requirement for graduation every student shall participate in one or more evaluative procedures, which may include examinations in general education and/or the major field of study. The evaluative information obtained through testing is used solely to improve the

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) Complete all requirements of both degrees, as specified above.

(2) Complete at least 45 quarter hours 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.

Program Assessment and Improvement Through Student Evaluation

In order for the University to assess and improve its academic programs, periodic measurements of student perceptions and intellectual growth must be obtained. As a requirement for graduation every student shall participate in one or more evaluative procedures, which may include examinations in general education and/or the major field of study. The evaluative information obtained through testing is used solely to improve the
quality of the educational experience for future generations of students.

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 total hours required for the degree sought and have this work count toward the degree. The University policy is to underwrite courses in correspondence in the major subjects shall be limited to one-fourth of the total credit hours required. Correspondence credits are not accepted for students in the College of Law or—except by prior permission—for students in 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 degree credit is given must meet 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 UTK student if 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 course is offered. 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 which are graded only on an S/N/D 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.

Enterling international students whose native language is not English are required to take the UTK English Proficiency Examination to determine placement in 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 Examinations 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 sophomores 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, English, their grade in 1010-20-31 will 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 Honors Freshman Composition 1038. If they earn an A in it, they will receive credit for 1018-28 with a grade of A. If they earn a B in 1038, their grade in 1018-28 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 based only on the average earned at the University of Tennessee, Knoxville. Students must have earned at least 90 quarter hours at UTK in order to qualify for honors categories.

If, at graduation, a student's UTK cumulative grade point average would allow a higher honors category than that determined at the end of the quarter preceding the graduation quarter, 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 advisor 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 continuance of eligibility to participate in intercollegiate sports:

1. A Freshman who has had no previous college enrollment must, to maintain eligibility for competition during the second and third quarters, pass a minimum of five (5) quarter hours of acceptable degree credit in the quarter preceding participation in a given sport.
2. Student-athletes qualifying for eligibility beyond the first year of residence must have satisfactorily completed 36 quarter hours between the beginning of the last season and the next season for the sport. No more than ten (10) quarter hours of correspondence or transfer credit may be used to satisfy this requirement. The student-athlete must have also passed at least eight (8) 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**

Graduate School  
- Doctor of Business Administration  
- Doctor of Education  
- Doctor of Philosophy  
- Specialist in Education  
- Master of Accountancy  
- Master of Arts  
- Master of Business Administration  
- Master of Engineering  
- Master of Fine Arts  
- Master of Mathematics  
- Master of Music  
- Master of Science in Nursing  
- Master of Public Administration  
- Master of Public Health  
- Master of Science  
- Master of Science in Library Science  
- Master of Science in Planning  
- Master of Science in Social Work  

College of Agriculture  
- Bachelor of Science in Agriculture  
- Bachelor of Science in Agricultural Engineering  
- Bachelor of Science in Forestry  
- Bachelor of Ornamental Horticulture and Landscape Design  
- Bachelor of Science in Wildlife and Fisheries Science  

School of Architecture  
- Bachelor of Architecture  

College of Business Administration  
- Bachelor of Science in Business Administration  

College of Communications  
- Bachelor of Science in Communications  

College of Education  
- Bachelor of Science in Education  

College of Engineering  
- Bachelor of Science in Aerospace Engineering  
- Bachelor of Science in Chemical Engineering  
- Bachelor of Science in Civil Engineering  
- Bachelor of Science in Electrical Engineering  
- Bachelor of Science in Engineering Physics  
- Bachelor of Science in Engineering Science  
- Bachelor of Science in Industrial Engineering  
- Bachelor of Science in Mechanical Engineering  
- Bachelor of Science in Metallurgical Engineering  
- Bachelor of Science in Nuclear Engineering  

College of Home Economics  
- Bachelor of Science in Home Economics  

Bachelor of Science in Interior Design  
Bachelor of Science in Tourism, Food and Lodging Administration  

College of Law  
- Doctor of Jurisprudence  

College of Liberal Arts  
- Bachelor of Arts  
- Bachelor of Fine Arts  
- Bachelor of Music  
- Bachelor of Science  
- Bachelor of Science in Chemistry  
- Bachelor of Science in Social Work  

College of Nursing  
- Bachelor of Science in Nursing  

College of Veterinary Medicine  
- Doctor of Veterinary Medicine  

**Fees and Expenses**  
University fees and other charges are determined by the Board of Trustees and are subject to change without notice. The general fees in effect at the time of publication are as follows:

<table>
<thead>
<tr>
<th>MAINTENANCE FEE</th>
<th></th>
<th>Per Quarter $277</th>
<th>Per Quarter $346</th>
<th>Per Semester $558</th>
<th>Per Quarter $558</th>
<th>Per Semester $967</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate Students</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Law Students</td>
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<tr>
<td>Veterinary Students</td>
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</tr>
<tr>
<td>Tuition (additional for all out-of-state students)</td>
<td>Per Quarter $558</td>
<td>Per Semester $967</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Tuition is required of all students who are classified as non-residents for fee assessment purposes.  

**NOTE:** In lieu of the above charge for tuition and/or maintenance fee, part-time students may elect to pay fees computed by the quarter hour credit (or audit) at the rates shown below, total charge not to exceed the regular maintenance fee for in-state students or the maintenance fee plus tuition for out-of-state students.

<table>
<thead>
<tr>
<th>Undergraduate Students</th>
<th></th>
<th></th>
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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>In-State</td>
<td>$33 per quarter hour or fraction thereof; minimum charge $99</td>
<td>$79 per quarter hour or fraction thereof; minimum charge $237</td>
<td></td>
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</tr>
<tr>
<td>Out-of-State</td>
<td>$150 per semester hour or fraction thereof; Minimum charge $345</td>
<td></td>
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<tr>
<td>Law Students</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>In-State</td>
<td>$81 per semester hour or fraction thereof; minimum charge $106</td>
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</tr>
<tr>
<td>Out-of-State</td>
<td>$178 per semester hour or fraction thereof; minimum charge $356</td>
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</tr>
</tbody>
</table>

**UNIVERSITY PROGRAMS AND SERVICES FEE**  
- Per Quarter $56  
- Per Semester $84

All undergraduates, graduates, and law students taking in excess of eight hours per term will be assessed a University Programs and Services Fee of $55 per quarter or $84 per semester for the academic year and $43 for the summer quarter. Part-time students taking eight quarter hours or less will be assessed at the rate of $3 per quarter hour (minimum charge of $9) or $4 per semester hour (minimum $8) but are not entitled to admission to general activities programs. Such students may elect to pay the $15 student health fee.

Knoxville campus students taking a course load of six, seven, or eight hours may elect to pay the full University Programs and Services Fee.

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

Activity 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...

- $30
- One hour lesson per week, per quarter...
- $60

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

**GRADUATION FEE**  
Bachelor’s Degree ................................... $20  
Master’s, Law and Veterinary Medicine Degree .................................. $30  
Doctoral Degree ...................................... $70

Payable at the beginning of the quarter or semester in which the candidate is to be graduated. This fee is non-refundable and is valid for only one year beginning with and including 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 registered and 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) before the last regular registration day. Such students may elect to pay the full University Programs and Services Fee.

**Additional Late Service Fees**  
- Additional Late Service Fees for 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 (or make satisfactory arrangements with the Bursar’s Office) before the graduated late service fee begins.

Students who are eligible for graduate late service fee beginning with the third 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 (or make satisfactory arrangements with the Bursar’s Office) 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.

**Bursar’s Office**  
- 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).

- All regular business days students will be charged a second additional $10 late service fee (total $30). After 15 regular business days students will be charged a third additional $10 late service fee (total $40). After 20 regular business days students will...
be charged a fourth additional $10 late service fee (total $50), and may, at the discretion of the University, be withdrawn from school and assessed the appropriate fees as of the date dropped.

A $10 service fee is applicable to extension of accounts and assessment of all room and board charges which are not paid (or deferral arrangements made) within seven calendar days after the date payment was due.

**REINSTATEMENT SERVICE FEE** ..............$30
A student withdrawn (or subject to withdrawal) for failure to pay appropriate fees who is reinstated for the quarter will be charged a $30 reinstatement service fee.

**RETURNED CHECK SERVICE FEE POLICY**

In the event a check given to the University in payment of initial fees and charges fails to clear the bank, the late registration service fee in effect at the time the check is redeemed will be assessed, plus a $10 Returned Check Service Fee.

If the student responds promptly to the first notice regarding the returned check but cannot redeem the check within a week, the $5 Delayed Payment Service Fee will be added. Any student who does not respond within seven days from the date of the first notice may be subject to withdrawal from the University and will be assessed an additional $10 Service Fee plus the $5 Delayed Payment Service Fee.

For other returned checks the service charge will be $10 if the check is made good within seven days, $20 if made good after seven days, and $30 if made good after twenty-one days.

Only under extenuating circumstances will a student be reinstated after official withdrawal for failure to pay fees or redeem a bad check.

**DEFERRED PAYMENT SERVICE FEE** ............$10
This service fee is applicable when any part of a student's fees and other charges are not paid during regular registration, including accounts which must be billed to outside agencies, organizations and institutions.

**LATE PAYMENT SERVICE FEE** ..............$5
This fee is applicable when a supplemental charge (tuition, room and board adjustments, etc.) is not paid within five regular business days after the date it is incurred. Students are expected to take the initiative to pay all University obligations promptly.

**APPLICATION FEE** ..............................$15
Each first-time undergraduate, graduate, and College of law application for admission to The University of Tennessee, Knoxville, must be accompanied by a fee of $15 before it will be processed. This fee is not refundable and is not required for transfers within the University system.

**PROFICIENCY FEES**

Fees for proficiency examinations are $15 per hour credit for undergraduates and $22 per hour credit for graduates. See page 22 for information on proficiency, CLEP, or other organized examinations.

**CO-OP REGISTRATION FEE** ..............$15
If credit is received, the appropriate quarterly hour rate will be added.

**AUDITOR'S FEE**

Fees for courses being audited are the same as those taken for credit. Auditors do not take the examination, receive credit, or participate in class discussions.

**REFUND OF FEES AND ADJUSTMENTS FOR WITHDRAWALS AND DROPPED COURSES**

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

The effective date of withdrawal is the date the Withdrawal Office is notified by completion of the official withdrawal request form. The appropriate percentage of fees will be charged unless this action is completed by the close of the last day designated for regular registration and before the first official day of classes of the quarter. Failure to promptly notify the Withdrawal Office when withdrawing will result in a fee assessed based on total 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 a 30 percent fee refund. Refunds, in accordance with the withdrawal refund policy, will be made after financial records are processed and audited.

There is no charge for courses dropped during the first seven calendar days following regular registration. For part-time students there is a 40 percent charge at the quarter hour rate for courses dropped between eight and 14 calendar days following regular registration. There is 100 percent charge for courses dropped after 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 by the Admissions and Records Office. 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 will vary for withdrawals and drops in the College of Law because of the semester system.

Rental charges and adjustments are determined by the Office of Residence Halls in accordance with the terms of the housing agreement or contract.

**OTHER INFORMATION REGARDING FEES**

All charges and refunds will be made to the nearest even dollar. All charges are subject to subsequent audit and verification. 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 to complete 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 diploma, graduation, 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 for in-patient care 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'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 $75 each for uniforms issued to them. All students who are members of the band are required to make a deposit of $75 each to cover damage or loss of property issued to them. The unused portion of the deposits will be returned to the students after the completion of the training.

**Identification Card.** ID cards, issued during registration or anytime during the year to all students, are prepared during registration by one of the first quarter students. All students enrolled 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 only be used by the student for whom they were issued. All cards are non-transferable and may only be used by the student for whom they were issued.
replacement ID card. It cannot be duplicated. A current validated fee for the course(s) dropped. No refund is applicable to fees are assessed at the regular quarter term courses dropped later than 14 calendar days after the regular registration day for the course(s) involved.

### 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 undergraduate student during 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 equivocants accommodations and meals elsewhere will usually be somewhat higher:

- **Undergraduate**
  - Maintenance Fee: $831
  - Programs & Services Fee: $168
  - Room and Meals: $2,335
  - Books, Supplies, etc.: $500

Total for Tennessee Residents: $3,297
Add for Non-Resident Tuition: $1,974

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 living conditions and 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 prior to occupancy. If a student withdraws from the University, the housing contract is cancelled in accordance with policies stated in the contract. Students assigned to residence halls desiring a board plan will be issued contracts written to include both room and board. A contract for housing signed by a student is binding for the term of contract and is rigidly enforced by the University.

  Additional information pertaining to single student housing may be obtained from the Office of the Residence Life and 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.

### 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. In order to receive Federal financial aid, students must be a U.S. citizen or classified as a permanent resident. All students must also comply with current Financial Aid Office policies and procedures. Financial need is defined as the difference between a family's resources and the total cost of attendance. If there is a deficit, 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 (FAQ) or ACT's Family Financial Statement (FFS), the Financial Aid Office determines the amount the parents and student can contribute toward educational expenses. For more detailed information on the determination of need, please refer to the brochure entitled, "Financial Aid Information," available in the Financial Aid Office.

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 Aid Information."

### 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 entering freshmen; 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, estate and trusts, 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 on the basis of academic achievement only. 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) or Standard Achievement Test (SAT). 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 undergraduate students applying for need-based financial assistance from the University must apply for this program. Other forms of financial aid will not be extended 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 of the Pell Grant Program are correct as of December 1983 and are subject to change by federal legislative action. Supplemental Educational Opportunity Grants. 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 December 1983 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 display a financial need for assistance. Awards cover tuition and maintaining 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 B-3 Towers, 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 as long as the individual remains in half-time attendance at an accredited institution of higher education in the United States. Repayment begins 6 months after the graduation or the end of the study of three (3) 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 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 if 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 monthly repayment of $30. 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 member of the handicapped, 15 percent of the total principal plus interest may be canceled for the first and second year of teaching, 20 percent for the third and fourth years, and 30 percent for the fifth year. If the graduate 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 may be canceled for each full year of service. Cancellation for up to 50 percent of the loan may also be given at the rate of 12 1/2 percent of the total principal plus interest for each year of service in the Armed Forces in an area 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 an annual maximum of $1,300 can be extended. One surety or cosigner is required for each promissory note and a new promissory note must be completed each year a loan is received. The interest rate is 6 percent per year payable on July 1 of each year. Repayment of the amount borrowed plus any unpaid accrued interest shall begin on the first day of the fourth month following graduation, withdrawal, or transfer from The University of Tennessee, Knoxville, or when the student ceases to carry at least one-half of the full-time academic workload. Minimum monthly installments will be $30 or 1/36th of the amount borrowed, whichever is greater. The borrower may choose to pay, without penalty, all or any part of the loan plus interest before entering the normal repayment period. The above regulations and provisions of the University Student Loan Program are correct as of December 1982 and are subject to change by action of the Board of Trustees.

Nursing Student Loan. These loans are available to students 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 with repayment beginning 12 months following termination of full-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 the Armed Forces, Peace Corps, the National Oceanic and Atmospheric Administration Corps, or the U.S. Public Health Service or up to 5 years for a full-time course of study leading to advanced professional training. The above regulations and provisions of the Nursing Student Loan Program are correct as of December 1983 and are subject to change by federal legislative action.

Health Professions Student Loan. This loan is available to UT Knoxville students who are enrolled or admitted in a course of study leading to a degree of Doctor of Veterinary Medicine and who are unemployed or have a 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 professional school. Repayment may be deferred for a period up to 3 years while the borrower is serving the Armed Forces, Peace Corps, the National Oceanic and Atmospheric Administration Corps, or the U.S. Public Health Service or up to 5 years for a full-time course of study leading to advanced professional training. The above regulations and provisions of the Nursing Student Loan Program 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 institutions, 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 at least a half-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 half-time enrollment or graduation. The maximum interest rate on PLUS loans is currently 12 percent and there is no federal interest subsidy. The U.S. Department of Education will pay the interest rate on the PLUS loan for the borrower, up to a maximum of $25,000 from GSL. The combined 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 no longer enrolled as a full-time student or no longer qualifies for some other deferment.

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

HEAL, Student Employment. Part-time jobs average from 15 to 20 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 request 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:

- AACE Scholarship Fund
- George G. Abraham Scholarship Fund
- Roy & Mildred Acuff Scholarships in Band
- The Roy & Mildred Acuff Scholarships/Choral Program & UT Singers
- The Roy & Mildred Acuff Scholarship in Music

Advertising Scholarship Fund

Agricultural Faculty-Alumni Scholarships

Ahmed Alisaffar Graduate Scholarship

James Thurman Allor and Judge Thurman Allor Memorial Scholarships

Air Force ROTC

Akima Club Interior Design Scholarship

Aloha Four Seasons Scholarships

Howard F. Aldmon Memorial Scholarship

Air Force ROTC

Alfred Scholar Foundation Fellowship Grant—Chemical Engineering

Allied Chemical Grant—Industrial Engineering

Allied Chemical Scholarship Grant—Industrial Engineering

Allied Chemical Scholarship Grant—Mechanical Engineering

Alpha Gamma Rho Scholarship Fund

Alpha Delta Kappa Scholarships

Joe Mac Alphin Memorial Scholarship

Altrusa Club of Knoxvile Scholarship

Alumni Music Scholarship

American Home Economics Association Scholarship

American Society for Metals, Oak Ridge Section, Scholarship

American Society of Tool and Manufacturing Engineers—Knoxville-Oak Ridge Chapter Scholarship

Ida A. Anders Scholarship

Arthur Anderson Alumni Scholarship

Winifred Anderson MBA Fellowship

Anderson County Agricultural Scholarship

R. Carter Memorial Fund for Excellence in Design

Anonymous Student Award

Animal Husbandry Award

Anthro-Department Scholarship Fund

Appalachian Opera Company Scholarship

Arab Student Assistance Fund

Architectural Discretionary Fund

Armistead Award in Veterinary Medicine Fund

Armour and Company Scholarship

Army ROTC

Max B. and Lalla B. Armstrong J. Clayton Arnold Teacher Training Scholarship

General Henry H. Arnold Educational Fund

Art Department Art Auction Scholarships

Daniel Arthur Permanent Center

ASCE Armour T. Granger Memorial Scholarship

Captain Samuel E. Asher Memorial Scholarship

Association of Government Accountant’s Award

Atlantic Richfield

Charles H. Bacon Scholarship

E. H. (Buddy) Avery

Bacon-Beard Scholarship in Philosophy Fund

M. & Mrs. Karl Bahret Scholarship

Hop Bailey, Sr. Scholarship

Bain-Swiggett Poetry Prize

John Baier College of Business Scholarship

Howard H. Baker Memorial Fund

Band Scholarship

Bank of Maryville Scholarship

Louis Beatrice Dunn Barbee

Paul Barnett Memorial Scholarship Fund

John Barrett Scholarship

Dorothea H. Barton Scholarship in Home Economics

Col. T. H. Barton Scholarship

Grace and Brodie Baynes Scholarship in Accounting

Dr. & Mrs. Joe D. Beak

C. Grier Beam Scholarship in Transportation

Beard Scholarship in Philosophy Fund

Henry E. Beard Memorial Scholarship in Engineering

Bedford County Farmers Cooperative Agricultural Scholarship

Roy F. and Ada B. Bell Scholarships

Belflent Scholarship in Veterinary Medicine

The Curt M. Bennett Scholarship

James Bennett Scholarship in Marketing & Transportation

Philo Sherman Bennett

Stelmon Bennett Agricultural Scholarship Fund

Edna M. and King M. Benson Memorial Scholarship Fund

Berkeley Corporation Scholarships

Beta Sigma Phi Scholarship

Bethel Theta Pi Memorial Scholarship Fund

Better English Graduate Aid
<table>
<thead>
<tr>
<th>Scholarship Fund</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guy Coheleach Conservation Fund</td>
<td>Kefauver Memorial Scholarship Fund</td>
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<tr>
<td>Amanda Minnis Bonham Scholarship Fund</td>
<td>Travis Hawk Scholarship</td>
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<td>Fred &amp; Ruth Brown Scholarship Fund</td>
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<td>Grover C. Brown Memorial Scholarship Fund</td>
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<td>Neill Mann Brown Scholarship in Agriculture</td>
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<td>Rlena G. Brown Scholarship Fund</td>
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<td>William Lester Brown Memorial Scholarship Fund</td>
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<td>Eleanor R. Burchfiel Scholarship Fund</td>
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<td>The College of Home Economics General Scholarships Fund</td>
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<td>Nellie Crooks Scholarship Award</td>
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<tr>
<td>Robert A. and Mary Neal Culver Scholarship Awards in Theatre and Music</td>
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<td>Dr. and Mrs. Timothy Gowder Scholarship Fund</td>
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<td>Leroy P. Graf Scholarship Endowment Fund</td>
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<td>Erma G. Graf Scholarship Fund</td>
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<td>Grainger County Agricultural Scholarship Fund</td>
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<td>James T. Granbery Memorial Scholarship Fund</td>
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<td>Armour T. Granger Scholarship Fund</td>
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<td>Senator Andrew Jackson Graves Memorial Scholarship Fund</td>
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<tr>
<td>Mae Graves Scholarship in Music</td>
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<td>Greater Kingsport Kennel Club Scholarship Program in Veterinary Medicine</td>
<td></td>
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<tr>
<td>Greater Knoxville Advertising Club Scholarship Fund</td>
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<td>John W. Green Law Scholarship Fund</td>
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<td>John W. Greenawalt Prize in Molecular Biology</td>
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<td>Greene Farmers Cooperative Scholarship Fund</td>
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<td>Irene H. Greene and Condon L. Greene Memorial Scholarship Fund</td>
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<td>B. L. and Margaret Greer Endowment Harriet Greave Scholarship (Alpha Omicron Pi</td>
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<td>Mother's Club)</td>
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<td>Hughes Hall Memorial Fund</td>
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<td>Hancock County Agricultural Scholarship Endowment Fund</td>
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Helen Giffin Headlee Memorial Scholarship
Knoxville Garden Club Scholarship
Lisa McReynolds Memorial Scholarship
James Robert Hawthorne Scholarship
Knoxville Chapter of National Association of Women in Construction Scholarship
Knoxville Farm Bureau Scholarship
Knoxville Farmers Co-op Scholarship
Knoxville Hardeman Scholarship
Knoxville Homestead-Motel Association Food and Lodging Scholarship
Knoxville Journal Scholarship
Knoxville Watercolor Society Scholarship
Eastman Kodak Fellowship
Kodak Scholarship Program
Stanley Kogut Memorial Scholarship
Louis and Lillian Kotler Scholarship
Willis F. Krueger Scholarship
Clarence C. Kuo Memorial Fund
Guy L. Lachance Memorial Award
John M. and Suzanne W. Larsen Tau Beta Sigma Women’s Band Award
John M. and Suzanne W. Larsen Kappa Kappa Psi Men’s Band Award
Law K. McGee Alumni Scholarship
Lay Packing Company Scholarship Fund
McAfee Lee Memorial Scholarship
Abraham Levy Scholarship
Thomas S. Lewis, Jr. Scholarship in Accounting
Frederick Lewison Scholarship Fund
Lincoln County Farmers Cooperative Agricultural Scholarship Fund
Lincoln County Memorial Scholarship
Colonel S. H. Lockett Engineering Scholarship
Colonel Samuel H. Lockett Memorial Scholarship
Wayne and Alberta Longmore Scholarship Fund
Material Testing Labs of Virginia Scholarship Fund
Material Testing Labs of Virginia Support Fund
Raymond H. and Sarah H. McAnally Animal Science Scholarship
Raymond S. McCall Memorial Scholarship
W. K. McClure Fund for the Study of World Affairs
F. Dwight McDonald Memorial Scholarships
McDonald’s Restaurant Scholarships
George H. McFarland Foundation Fund, Inc.
Robert L. McKnight Memorial Scholarship in Labor Law
Mason Bank and Trust Company Scholarship
Macon County Farm Bureau Scholarship
Magnavox-Mary Costa Scholarship in Voice
Magnolia Federal Savings and Loan Scholarship
Main, Hurdman, Cranston Scholarship
Frank Manning Scholarship
Marketing Discretionary Fund
Dr. James D. Marsh Memorial Scholarship
Masstetter Foundation Fund
Martin-Marietta Freshman Scholarship
James E. Martinson Scholarship
Maryville-Alcoa Daily Times Scholarship in Journalism
Maryville-Alcoa Daily Times Scholarship in Advertising
Mason Contractors Association of Chattanooga Scholarship
Masonry Institute of Tennessee Merit Scholarship
Maury County Farm Bureau Scholarship
Maury Farmers Cooperative Agricultural Scholarship
Mayfield Dairy
Edgar Wyman McColl Scholarship
Raymond S. McIlrath Scholarship
Dorothy Ryan McCarthy
Charles J. McClung Prize
McClure Fellowships
McDonald Hamburger Restaurants
F. Dwight McDonald Memorial
Henry George McGinley Merit Scholarship
Robert L. McKnight
Helen Ross McNabb Mental Health Center
Lisa McReynolds Memorial Scholarship Award
Mead Corporation Foundation Grant
E. J. Meeman International Communications Fellow
A. D. Melayen-Rhenium Scholarship Fund
Meigs County Agriculture Extension Scholarship
Memphis Gridiron Show, Inc. Scholarship Fund
Memphis Hotel-Motel Association Food and Lodging Scholarship
Memphis Motor Hotel Scholarship
John Mercer Agricultural Scholarship
The Merck Co. Foundation Scholarship
Barnadine Meyer Scholarship
Isabel and William Michalopolous Memorial Scholarship
Voice
Middle Tennessee Veterinary Medical Association Scholarship in Veterinary Medicine
Mike Milburn Memorial Scholarships
John M. and Grace Milner Scholarship
Carl W. Miller Memorial Student Assistance Fund
Judge William E. Miller Memorial Scholarship in Law
Miller’s, Inc. MBA Scholarship
T. A. Mitchell Scholarships
Minority Engineering Scholarship Program
Minority Student Assistance Endowment
Susan L. Moeller Memorial Scholarship Fund
Phillip W. Moffitt Scholarship Fund
Chesler A. Moyle Memorial Scholarship
Monroe County Bank Agriculture Scholarship
Billy J. and Sylvia F. Moore Scholarship
Fund
Fulton Beverly Moore, III Memorial Scholarship Fund
George C. Moore Company Scholarship
Grace Moore Scholarships
Moorman Company Scholarships
Mark Moreland Scholarship
Mabel Miller Morelock Scholarship
Philip Morris Agriculture Scholarship
Sam Morrison Agricultural Scholarship Fund
Sam N. Morrison Architectural Scholarship
Morton, Lewis, King, and Krieg Scholarship Endowment
Arthur H. Moser Memorial Scholarship
Flora Belle and Bessee A. Moss Scholarship
Music Department Scholarship Fund
Music Study Club Scholarship
Jessie B. Naive Scholarship
Nashville Hotel-Motel Association Food and Lodging Scholarship
National Association of Women in Construction Scholarship
National Food Brokers Association Scholarship
National scholarship for Minority Engineering Students
National Food Service Institute Achievement Award
Robert and Mary CulverNeal Scholarship
Thomas P. Nielsen III Memorial Scholarship Endowment Fund
Networks Electronics Corporation Scholarship
New River Dance Company
James and Dorothy Newman Scholarship
Jake R. & Dorothy Newman Transportation Scholarship
Robert R. Neyland Academic Scholarships
J. H. Nicholson Memorial Scholarships
Harry Nides Scholarship
The Alvin H. Nielson College Scholars Scholarship Fund
Rhonda O'Meara Scholarship
Omicron Nu Sophomore Scholarship Award
Ornamental Horticulture and Landscape Design Scholarship
Evelyn and Bergin Overholt Scholarship
Elliott R. Beckett Scholarship
Panhellenic/Kappa Kappa Gamma Ewing Scholarship
Mr. and Mrs. Marcus Parker Agricultural Scholarships
Part Time Continuing Education of Women Scholarship
Pella Travel Scholarship
Patterson and DeWar Scholarship
Peninsula Psychiatric Hospital Scholarship Fund
William Britt Pennebaker Scholarship
Angie Warren Perkins Prize Fund
Carl I. Peterson Scholarship Fund
Phl Kappa Lambda Music Scholarship
Phi Kappa Phi Society Scholarship
Pilot Oil Corporation Scholarship
Demonstration Cows Scholarship
Polk County Agriculture Extension Scholarship
Jone Foster Student Scholarship
Porter-Walker Hardware Company Agricultural Scholarship
Frank F. Powers Scholarship
Presler Foundation Scholarships
Price Waterhouse Foundation
Proctor and Gamble Minority Chemical Engineering Scholarship Fund
Psychiatric Services
Janenne Jones Quillen Memorial Scholarship Fund
Ralston Purina Scholarship
Ralston Purina Company Fellowship
Purity Dairies Scholarship
Rechenbach F. Scholarship Fund
Reg. Mental Health Center
Rehabilitation Corporation of Tennessee Scholarships
R. J. Reynolds "Pride in Tobacco" Scholarship
Grantsland Rice Memorial Award
The Malloy Structural Architectural Award
Stephen D. Rimmer Memorial Scholarship
Roane County Council of Home Economics Scholarship
Judson Hall Robertson Memorial Scholarship
Victor M. Robertson Award Endowment
Thomas L. and Emma H. Robinson Scholarship
Fred M. Roddy Memorial Scholarships
Fred M. Roddy Merit Scholarship Fund
Rohm and Haas Company Scholarship
Douglas V. Rosenberry Memorial Scholarship
Callie Wood Ross Scholarships
R. C. T., C. Scholarship Fund
Paul Leonard Roth Memorial Scholarship Fund
Schenley Industries Food and Lodging Scholarship
Schnumberger Collegiate Awards
Bernadette E. Schmitt Scholarship Fund
School of Architecture Scholarship Fund
Scrivs-Howard Foundation Scholarships
Scruggs, Inc. Food and Lodging Scholarship
Mary Louise Stelloza Scholarship Endowment Fund
Sevier County Farmers Cooperative Scholarship
Sevier County Scholarship
Sevier County Scholarship in Organ
Richard C. Sexton, Jr. Rugby Club Scholarship
Helen J. Sheard Scholarship
Dr. and Mrs. David Shaheen Scholarship
J. Reuben Sheeler Writing and Research Award
Shell Companies Foundation Scholarship in Transportation and Logistics
Sherwood Chevrolet Company Scholarships
Beverly Shrode Agricultural Memorial Scholarship
Siegel, Bible Student Development Endowment Fund in Accounting Sigma Alpha Iota Sorority
C. C. Doe Silberman Betsey and Toby C. Silberman Scholarship Endowment Fund
Tom Silber Scholarship in Communications
Colonel Lawrence S. Simcox Memorial Scholarship
Charles S. Simms Scholarship Fund
Carlos C. and Winnie Simpson Scholarship Fund
Elizabeth Z. Smith Scholarship
Smoky Mountain Chapter of NABAC Scholarship
Charles O. Snapp Scholarship Fund
John Milton Snoddy Scholarship Fund
James P. Snow Academic/Athletic Memorial Scholarship Fund
Cyril A. Soans Prize
Society of Professional Journalists Scholarship Fund (East Tennessee Chapter)
Helen Knowles Soper Scholarship
Southeastern Bankruptcy Law Institute, Inc. Fellowship Endowment
Southern Shipper & Motor Carrier Council Scholarship Fund
Southern Title Insurance Company Real Property Prize
W. H. H. Southern Memorial Student Assistance Fund Endowment
Caesar arnold us a Chivalry Scholarship
Standard Textile-Food and Lodging Scholarship
Sadi K. Stedman Home Economics Scholarship
William J. Starr Suzuki String Scholarship
Stauffer Chemical Company Scholarships
Ruth Stedelaar Tribute Award
Ruth Stephens Award
Dr. Ruth Stephens Scholarship in History
Dr. Ruth Stephens Scholarship in International Relations
Pauline Harrison Stockton
William B. Stokely, Jr. Foundation Master of Business Administration Fellowship
William B. Stokely, Jr. Scholarship
William B. Stokely, Jr. Scholarship in Education
William B. Stokely, III, Scholarship
Levi Strauss Foundation Graduate Fellowship
String/Bass Guitar Scholarship
Elsa Waburn Strong Scholarship
Stouffer Foods Corporation Scholarships in Home Economics
Student Publications Scholarship Fund
Joe Sullivan, Ill Scholarship
Sullivan County Cultural Scholarship
Glenn G. Summers Agriculture Fund
Swan Brothers, Inc. Scholarship
Jerome G. Taylor Scholarship Endowment Fund
William J. Taylor Memorial Fund in Transportation
Judge George Caldwell Taylor Memorial Scholarship
The Jane Temple Memorial Scholarship Endowment
Tennessee Association of Extension Home Economics Scholarship
Tennessee Bar Association, Knoxville Auxiliary, Scholarship
Tennessee Claims Insurance Scholarship
Tennessee County Agents Association Scholarship
Tennessee Eastman Grant - Accounting
Tennessee Eastman Grant - Chemical Engineering
Tennessee Eastman Grant - Chemistry
Tennessee Eastman Grant - Industrial Engineering
Tennessee Eastman Grant - Industrial Management
Tennessee Eastman Grant - Mechanical Engineering
Tennessee Eastman Scholarship Fund—Chemical and Metallurgical Engineering
Tennessee Eastman Scholarship Fund in Management
Tennessee Eastman Scholarship—Physics
Tennessee Executive Development Program Scholarship in Business
Tennessee Farmers Cooperative Agricultural Scholarship
Tennessee Farmers Mutual Insurance Company Agricultural Scholarship
Tennessee Federation of Federal Land Scholarship
Tennessee Federation of Garden Clubs
Tennessee Flower Growers Association Scholarship
Tennessee Home Demonstration Agents Association Scholarship
Tennessee Howard Johnson's Food and Lodging Scholarship
Tennessee Jaycettes Special Education Scholarship
Tennessee Plant Food Educational Association Scholarship Fund
Tennessee Restaurant Association Scholarship Fund
Tennessee Retail Grocers Association Scholarship
Tennessee Road Builders Association
The Willburn B. Townsend Memorial Scholarship
Tennessee Valley Personnel Association Scholarship Fund
Daniel Hanley Testerman Memorial Scholarship
Taxco Scholarship
Taxco Scholarship Fund—Geological Sciences
Tennessee Scholarship Fund—Mechanical Engineering
T.I.M.E. Scholarship Fund in Tourism, Food and Lodging
B. Ray Thompson
Esar Thompson Memorial Fund
Steve Tobler Forestry Memorial
William M. Tolley Scholarship Fund
Tennessee Hotel-Restaurant Association Scholarships
Judge and Mrs. Buford Townsend Scholarship
The Willburn B. Townsend Memorial Scholarship
Tractor Service Company Forestry Scholarship Fund
Transportation and Logistics
Stephen R. Trotter Memorial Scholarship
Endowment Endowment Fund
TSCPA Women's Auxiliary
R. S. Tucker Graduate Fellowship in Business Administration
United Auto Workers Estes Kefauver Memorial Scholarship
United Steelworkers of America Estes Kefauver Memorial Scholarship Fund
University Evening School Scholarship Fund
University of Tennessee National Alumni Association Freshmen Scholarships
University of Tennessee National Alumni Association Upperclassmen Scholarships
University of Tennessee National Alumni Association Valedictorians Scholarships
University of Tennessee National Alumni Association National Merit Scholarships
University of Tennessee Scholarship Band Scholarships
University of Tennessee Hospital Auxiliary Nursing Scholarship
University of Tennessee International Scholarship Fund
University of Tennessee Knoxville School of Architecture Endowment Fund
U.S. Students Abroad Scholarship Fund
U.T. Opera Theatre Fund
U.T. Singers Scholarship
UT-LCHS Graduate Program in Medical Ethics Philosophy
R. R. Vance Scholarship in Education Endowment Fund
Victory Van Lines Agricultural Scholarship
Lee L. Ver Standig
John and Manora C. Viles Scholarship
Vinylite Corporation Scholarship
Frederick Bickford Vreeland Scholarship
Thomas Wade Scholarship
George A. and Myrtle Warner Memorial Scholarship
Business Education
Pauline Capel Walker Memorial Prize in French
Senator Herbert Walters Foundation Scholarship
Dean Frank A. Ward Memorial Scholarship Endowment Fund
Charles A. and Myrtle Warner Memorial Scholarship Fund
Harold C. Warner Law Centurion
Charles A. and Myrtle Warner Memorial Law Scholarship
Dean Frank A. Ward Memorial Scholarship
Senator Herbert Walters Foundation
Pauline Capel Walker Memorial Prize in French

Nicholas Columbus Scholarship

E. P. Frost Memorial Foundation (The Scarlett Senior Scholarship Loan Fund)
Eugene Gambill Loan Fund
Helen B. Gibson Loan Fund
Gordon A. Hawkins Memorial Loan Fund
Dr. and Mrs. Timothy Gowder Student Loan Fund
Fleta Crilla Hodge Memorial Loan Fund
J. E. Hogg Loan Fund
Ruth Hope Memorial Loan Fund
R. N. Kesterson Loan Fund
Knoxville Academy of Medicine Loan Fund
J. E. Lutz Memorial Loan Fund
Clarence H. Moody Loan Fund
Ire Moore Memorial Loan Fund
Phi Kappa Phi Loan Fund
Phi Mu Alumnae Association Loan Fund
Mary Plummer Memorial Loan Fund
Maudie Powell Student's Aid Fund
James H. Rader Memorial Loan Fund
Charles C. Riffhoff Loan Fund
William Rule Loan Fund
Senior Memorial Loan Fund, 1922
Senior Memorial Loan Fund, 1925
Sarah Hawkins Sevier Memorial Fund
James C. Shull Loan Fund
J. Allen Student's Aid Fund
Southern Railway Loan Fund (William Wilson Finney Foundation)
B. R. Strong Trust Fund
Students Loan Fund (Special)
Students Loan Fund of the Tennessee Banker's Association (Fred Collins Memorial Foundation)
Mary Boyce Temple Loan Fund
Williamson County Farm Bureau Scholarship
Nathaniel S. Woodard Memorial Loan Fund

Honors and Awards

The honors and awards available to students at UTK are listed with donors below:
the right not to award any of the honors or awards listed herein is reserved to The University of Tennessee, Knoxville.

Dean's List. Public announcement of students passing a quarter's work: "With Highest Honors" (grades from 3.75 through 4.0), "With High Honors" (3.40 through 3.74), "With Honors" (3.0 through 3.39). To be eligible, a student must complete at least 12 hours, not counting work taken on satisfactory/no credit basis.

Victor M. Davis Awards. Granted each year to juniors who demonstrate exceptional campus leadership.

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, activities, 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 an outstanding junior in the Department of 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.

The American Society of Animal Science awards 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.

The Danforth Foundation Inc. provides a fellowship to support two weeks of leadership training at Camp Minerva for the University of Wisconsin student following the freshman year.

Jesse David Cleet Memorial Scholarship.

The University 31

Kentucky-Tennessee Society of American Foresters Scholarship. Awarded annually to the junior 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 Agriculture Student-Faculty Council presents plaques to four seniors, three juniors, and two sophomores in the college judged to be outstanding. Selection is based 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. Awards to students competing in poultry and poultry products judging.

School of Architecture

General Shale Products Corporation Fellowship Fund. Scholarships awarded to scholastically outstanding fifth-year students.

Goodstein, Hahn, Shorr & Associates Draftsmanship Award. Awarded each spring to architecture student excelling in draftingmanship.

Malcolm Rice Achievement Award. Awarded annually to the third-year student showing most improvement with design studio.

Mason Contractors Association Of Chattanooga Scholarship. Awarded to a fifth-year architecture student from Hamilton County, Tennessee, or if none exists, from a bordering county in the State of Tennessee.

Ray and Mary Evelyn Andrus Award. Awarded to outstanding student in design.

College of Business Administration

Beta Gamma Sigma Awards. Plaques and awards given to the freshman and sophomore students with highest grade point averages by this national business honorary society.

Delta Sigma Pi Scholarship Key. Given by international fraternity to male senior with highest four-year scholastic average.

Liston M. Fox Memorial Undergraduate Scholarship. Awarded annually to the rising sophomore who is being admitted to a major in the College of Business Administration.

John Fred Holly, Jr. A memorial scholarship endowed by parents.

Knoxville Sales Executive Club Award. Plaque plus dinner in student's honor, to outstanding senior marketing major.

John M. and Suzanne W. Larsen Phi Kappa Phi Scholarship Award. Awarded to the College of Business Administration junior initiates with the highest grade point average.

John M. And Suzanne W. Larsen Beta Gamma Sigma Outstanding Male and Female Awards. Awarded to the male and female College of Business Administration junior initiates with the highest grade point averages.

James R. And Dorothy Newman Transportation Scholarship Fund. Awarded on an annual basis to a student chosen by the scholarship committee for the department.

Fulton Beverly Moore, Ill Memorial Real Estate Scholarship. A memorial scholarship fund endowed by the parents.

Pi Omega Pi Scholarship Key. Key to senior business education major with highest 11-quarter scholastic average.

Shell Companies Foundation Scholarship/Transportation and Logistics.
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. Key, to junior woman showing most outstanding qualities for professional leadership in education, attaining high scholastic average through junior year.

College of Engineering

American Association of Cost Engineers Scholarship

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 scientifically and in branch activities has been outstanding.

American Institute of Chemical Engineers Professional Achievement Award. Given to chemical engineering senior who has contributed most to student chapter. Name engraved on permanent plaque. Also certificate.

American Institute of Chemical Engineers Scholarship.

Greater Knoxville Hotel-Motel Association Scholarship Fund. Awarded to 10 students majoring in the Department of Advertising.

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.

Alumni R. Cox Memorial Scholarship

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.

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

Association of Textile Industry Engineers Award. Scholarship. Name on plaque.

Frank and Ruth Liggett DeFriese Scholarship. Awarded to one or more upperclass civil engineering students who are either U.S. citizens or USA permanent-visa holders.

Amoco Minority Chemical Engineering Scholarship Fund. Awards can be made to minority and minority 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. Weissberg 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 Student Section 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 Tennessee 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 may be made to minority and minority students majoring in electrical engineering, preferably seniors who are either U.S. citizens or USA permanent-visa holders.

John Milton Snodderly 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. Raymond Shobe Excellence in Engineering Mechanics Award. Given annually to student with outstanding record of undergraduate study 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.

Texaco Philanthropic Foundation

University of Tennessee Book and Supply Store Award. An electronic calculator awarded quarterly. Chosen by department committees in rotation. Given to an upperclass student on the basis of need and demonstrated academic performance.

WATTec UT Engineering Scholarship

College of Home Economics

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


Dorothsea 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 DeFriese Scholarship. Awarded to a home economics student biannually.

Donelson Home Economists.

General Foods Fellowship. Awarded to home economics doctoral student.

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

Jessie W. Harris Scholarship. Awarded to sophomores, juniors, and seniors with highest scholastic record.

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

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

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

Greater Knoxville Hotel-Motel Association Scholarship. Awarded to student enrolled in tourism, food and lodging administration program.
Lewisohn Scholarships. Endowed by Frederick Lew-
isohn. Ten, variable.

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

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

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

Nellie Crooks Award. Award of reference books and journals to an outstanding junior.

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

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

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

Schenlin 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.

Staller Foundation Scholarship. Awarded to hospital patients throughout the United States.

Stouffer Foods Corp. Scholarship. Awarded to entering freshman.

Tennessee Chapter of Future Homemakers of America.

Tennessee Diotic 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. Creekmore Memorial Award. Established by the Creekmore family and friends in memory of Frank B. Creekmore, 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. The joint publishers of American Jurisprudence offer separately bound topics from the encyclopedia to students receiving the highest grades in each subject.

Michie/Booze-Merrill Law Publishing of Charlottesville, 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. 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. An award consisting of a $250 subscription to the American Lawyer, or $200 in cash, to a law student who has the highest scholastic average in the class.

West Publishing Company Award. An award to the law student who has the highest scholastic average in the class.

Bain-Swigett Poetry Prize. For excellence in writing best essay during three years of study.

John M. Allen Mathematics Prize. Metal, to outstanding mathematics student. Prize is determined by competitive examination covering material found in the following courses: Mathematics 1540, 2550, and 3550.

Judson H. Robertson Award in Analytical Chemistry. Endowment established by family and friends of the late Professor Robertson. Cash award to the student who has the highest scholastic average in the following courses: Chemistry 1611, 1612, 2611, 2612, and 2613.

Biologia Award. Plaque, to the outstanding biology senior.

Eleanor R. Burke Award. For excellence in English prose fiction. Founded in honor of the daughter of a former head of the English department.

Dorothea and Edgar D. Eaves Outstanding Teaching Award and Summer Fellowship Awards. Awarded each year to beginning G.T.A. in mathematics 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 UT.

Arnett A. Elliott Award. Established by the Department of Political Science to honor Arnett A. Elliott and promote scholarship in Political Theory, this Award is given to undergraduates for distinguished performance in Political Theory.

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

Chi Omega Prize. Given by Phi chapter of sorority to the senior woman majoring in the social sciences, who has the highest proficiency in the subject.

Maud Calloway Hays Scholarship. Variable.

Dorothy and Edgar D. Eaves Outstanding Teaching Award and Summer Fellowship Awards. Awarded each year to the G.T.A. in mathematics with the highest grade point average.

Ruth Stephenson Award in International Relations and International Law. Established by the late Mr. and Mrs. Oscar Handy, Knoxville. Given to the student showing greatest knowledge of international relations or international law.

Ruth Stephenson History Scholarship. Given to history major for academic excellence.

Rush Strong Medal. Established by the late Benja-
rin Rush Strong, Knoxville. Medal to student submitting best essay on "The Value of Truth".

Lee L. Verbatim Scholarship. Cash award to outstanding student in history.

Pauline Cappell Walker Prize in French. Given to senior French major with greatest mastery of language, literature, and civilization of France.


College of Nursing

Kama Scholarship Fund. Awarded to students attending nursing schools at East Tennessee Baptist Hospital, Fort Sanders Presbyterian Hospital, St. Mary's Hos-

pital, and the University of Tennessee College of Nursing.

Campus Honorary and Professional Fraternities and Societies

A number of honorary and professional fraternities and societies have chapters at The University of Tennessee, Knoxville. Membership in these organizations is gener-

ally based on the initiate's good character, professed interest in the chosen field, leadership characteristics, and high scholastic record.

Those honorary fraternities, both national and local, with chapters at UTK are:

Alpha Chi Sigma, for chemical engineering and chem-
Student Affairs and Services

Career Planning and Placement Service

This department engages in a wide variety of services. Career Planning Services include workshops, career days, guest speaker programs, individual advising, and a reference library. The office furnishes information about educational, occupational, employment, and financial assistance 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 resume preparation. Comprehensive courses are offered for academic credit.

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

The Placement Service offers students the following services: opportunities to conduct on-campus interviews with hundreds of local, regional and national employers; weekly job listing bulletin; employer literature, alumni placement assistance, job counseling and employer information; salary and placement statistics; “Career Days” for employer exploration and identification; and a credential file containing references, grades and a resume. The department arranged over 13,000 interviews in 1984-85 and is known by employers to be one of the leading placement services in the country.

For information regarding Career Planning and Placement Services call 974-5435.

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 student having a disability which restricts his/her participation in academic life is eligible for services. Services provided include personal and career counseling, interpreters, reader referral, and other services designed to meet the student’s individual needs. Assistance is available for making arrangements for special in-class assistance. 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. The program 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 every opportunity for success. The opportunities include small classes, the availability of the professor for individual help sessions, individual and small-group tutors, self-paced courses, individual academic advising each quarter, and both academic and personal counseling services. In addition, the EAP staff attend a special information session 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 cross-campus work is sponsorship of the Black History Week and the Black Arts Festival. Within the Center itself exhibits relate to the African-American past, small group lectures, group study sessions, and a tutorial program aimed especially at minority students who 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.

Minority Student Affairs

The Office of Minority Student Affairs is designed to enhance the quality of life for Minority Students. Working in conjunction with other campus and community groups, the office helps identify, encourage, and assist students who have academic potential and motivation to develop their talents at UTK.

Housed within the Black Cultural Center, the office furnishes information about educational, employment and financial assistance opportunities, offers tutorial services and career development programs.

The office is located at 812 Volunteer Boulevard.

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 freshmen 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 advisors to the student judicial system and, when necessary, initiate appropriate discipline proceedings.

Center for International Education

International students interested in applying to UTK should consult the requirements listed on p. 12 of this Catalog, or for graduate studies, the Graduate Catalog.

The Center advises and counsels international students and faculty from other countries with matters of particular concern to them during their stay in the United States. It provides assistance with visas and with the U.S. Immigration and Naturalization Service. The Center is the University’s official representative to INS, to international educational organizations and to foreign governments. It maintains current informational files on all U.S. visa holders.

The Center advises international students on the academic calendar and assists with adjustment to the United States. Orientation programs are offered at the beginning of each academic term, and staff members are available for advice and counsel on academic and personal matters.

The Center’s International House provides a rich array of programs intended to bring together members of the international and the U.S. communities to share their cultures and customs and to learn of those of others. At I-House English language classes are available for spouses, seminars of international interest are taught, and area volunteers work for intercultural communication and mutual understanding.

The Center also serves students and faculty interested in travel, work or study abroad. Staff are available to advise, to assist in the preparation of fellowship scholarship applications, and to provide information on a broad range of international topics. The Center maintains a reference library of overseas study and travel materials, scholarship and other special programs intended to serve those with international interests. The Center also administers several international exchange programs. More than 50 universities throughout the world are available to UTK students through the International Student Exchange Program. Direct UTK exchange arrangements link the Knoxville campus with institutions of higher education in Europe, Latin America, Asia and the Middle East.

The Center for International Education serves all members of the University community interested in international education. It works closely with the faculty, departments, and colleges of the University to
Clinic at The University of Tennessee through the emergency room Student Health during evenings and weekends is available Monday through Friday. Emergency care Avenue maintains scheduled daytime hours lab tests, and injections received through are made for some services such as x-rays, dents at no additional cost while charges are available continuously throughout the campus. Those students requiring allergy injections can be arranged for the student if desired. Those students requiring allergy injections care and gynecology are available on campus by referral by a staff physician. Care 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. Virtually all medical services at the Health Service has a regular staff of primary physicians, nurses, laboratory and x-ray technicians of Tennessee licensure. Out-patient 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 referrals by staff physician. Care beyond that provided by the regular staff can be arranged for the student if desired. Many of these students requiring allergy injections may arrange to receive care at the Clinic. Most UTK study abroad programs are 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. Out-patient 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 referrals by staff physician. Care beyond that provided by the regular staff can be arranged for the student if desired. Many of these students requiring allergy injections may arrange to receive care 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/weekend clinic at The University Of 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 the 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 Hospital or the Student 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 offers services designed to help students with educational, career, 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 can work with the faculty and student personnel staff to develop educational programs and projects to meet the needs of various groups at the University. The Student Withdrawal 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. Appointment 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 responsible 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, students and allergies are covered in 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 consider 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 spiritual 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 are 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. Ombudsman Office Personnel of the Ombudsman Office in the University Center assist students in the resolution of problems encountered with any 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 Provost, serves as a central point from which the broad range of international interests throughout the University are strengthened and related to each other. Located in 205 Alumni Hall, the Division of International Education provides the development, expansion, and continuation of the University's basic commitment to the international dimensions of the education process. Most UTK study abroad programs are coordinated through the Division, and new programs are planned with its assistance. Individual counseling for students and faculty by a study, work, and travel abroad
consultant, a reference library containing information on all aspects of overseas opportunities, a fellowship/scholarship service, a publication section, and information on special programs and projects are available in the Division. The Division coordinates the International Student Exchange Program (ISEP) for the UT campus and, as a federally funded program, a UTK student can study at more than 50 academic institutions abroad for not much more than the cost of spending a year at UTK. Additionally, the Division has developed direct exchange linkages with, among others, Universitat Bonn, the University of Manchester, the University College of Swansea, Ulster Polytechnic, and International Christian University for similar exchange programs.

A recent publication of the Division, complementing “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 destinations, and funding sources. 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. and abroad involved in international program development.

Writing Laboratory

To aid students in regaining and improving their skills in writing, the University operates a Writing Laboratory. Students who have successfully completed the English Composition sequence may voluntarily visit the Laboratory at any time for diagnostic help with their writing problems.

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 clinical 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, Administration 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 the academic departments, efforts are made to insure that attention 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 adjustment of schedules to assure classroom accessibility; the securing of special parking permits, elevators, Friday, and Sunday; 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 and adequate 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 innards a 100 parking level 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 Thursday, and 12 Noon Saturday to 7 AM Monday; however, general parking is permitted in staff 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) Guest parking is not 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. Exhibits, concerts, recitals, 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), Laboratory 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 Clarence Brown Company puts on four plays a year, the University Company normally presents five plays per year, the Theatre Students Association presents between six and ten. Two plays for children are performed yearly for the area schools, and there are also quarter class projects in directing, readers' theatre, foreign language dramas, etc. The Clarence Brown Company, Tennessee's only fully professional company concentrates on the classical repertoire, and its productions have travelled to Kennedy Center and Broadway. 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. McCLUNG 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, decorative and fine arts, geology, local history and architecture, and natural history. Temporary and permanent exhibits are presented on those subjects. The Eleanor Deane 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 on a regular basis by the UT Department of Art in the galleries of the Art and Architecture Building. Arrowmont School of Arts and Crafts, Gatlinburg, Tennessee, displays works by faculty and students during the summer months.
CONCERTS
There are two committees on campus charged with the responsibility of providing the University 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 its major concert series and the presentation of other concerts at various locations across the campus.

Cultural Attractions Committee. A student, faculty, and staff committee, this group is responsible for the 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 feature speakers who are considered experts and represent diverse points of view on a variety of topics.

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 charter 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

Academic Common Market
The Academic Common Market is an interstate agreement among Southern states for sharing unique programs. Participating states are able to make arrangements for their residents who are fully admitted to specific programs at UTK on an in-state tuition basis, where these programs are not available in the state of residence.

Cooperating states in the Academic Common Market are Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, South Carolina, Tennessee, Texas, Virginia and West Virginia. Twenty doctoral, one Specialist in Education, and sixteen Master's programs at UTK are approved by the Academic Common Market for residents of these states to enroll at in-state tuition rates.

Residents of one of the member states who seek further information should contact the Residency Clerk in the Office of Graduate Admissions and Records or the Southern Regional Educational Board, 130 Sixth Street, N.W., Atlanta, GA 30313.

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, Joan Cronan, 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 NCAA and the SEC. Eligibility for participation is determined by the NCAA, the SEC, and the University faculty.

A varied intramural and sports club program is provided for all students. These programs are directed by the Office of Recreation and are housed at the Student Aquatic 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 William S. Shields, former member of the University Board of Trustees, and his wife.

The stadium, built and developed by the Department of Athletics over a period of years, can now accommodate over 91,249 spectators.
STOKELY ATHLETICS CENTER

The hub of the University's sports program is Stokely Athletics Center, which houses a 12,700-seat basketball arena and a fine indoor track. Also located here are coaches' offices, dressing rooms for all sports, and a Hall of Fame room.

OTHER FACILITIES

The University is proud, too, of its Tom Black Track, host to regional and national meets and built to Olympic specifications. Hudson Field, baseball field and stadium seating 1,500 fans in addition to providing dugouts and press box facilities, is one of the best complexes in the conference. Also, new tennis courts afford an excellent vantage point for spectators.

Student Publications

A number of student publications are printed during each school year to serve as sources of information for 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 of campus activities, and The Phoenix, a 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.
- IFC Rush Brochure, 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.

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.

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 responsible 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 Groups, 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.
<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>320 Student Services Building</td>
<td></td>
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<tr>
<td>Transfer credit evaluation</td>
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<tr>
<td>Residency classification</td>
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<tr>
<td>Fee information</td>
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<tr>
<td>International student requirements, services</td>
<td>Admissions Office</td>
<td>(615) 974-3177</td>
</tr>
<tr>
<td></td>
<td>Office of International Student Affairs</td>
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<tr>
<td></td>
<td>201 Alumni Hall</td>
<td></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></td>
<td>209 Student Services Building</td>
<td></td>
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<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></td>
<td>115 Student Services Building</td>
<td></td>
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<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></td>
<td>212 Student Services Building</td>
<td></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>305 Student Services Building</td>
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<tr>
<td></td>
<td>Handicapped Student Services</td>
<td>(615) 974-6087</td>
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<tr>
<td></td>
<td>900 Volunteer Boulevard</td>
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<tr>
<td>Single student on-campus housing</td>
<td>Single Student Residence Halls</td>
<td>(615) 974-3411</td>
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<tr>
<td></td>
<td>405 Student Services Building</td>
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<tr>
<td>Married student housing</td>
<td>Married Students Housing</td>
<td>(615) 974-3431</td>
</tr>
<tr>
<td></td>
<td>107 South Stadium Hall</td>
<td></td>
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<tr>
<td>Off-campus housing opportunities in non-university property</td>
<td>Off-Campus Housing</td>
<td>(615) 974-5276</td>
</tr>
<tr>
<td></td>
<td>336 University Center</td>
<td></td>
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<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>
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<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>
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<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>
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<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>
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<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 UT Center for the Health Sciences</td>
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<tr>
<td></td>
<td>62 South Dunlap Street</td>
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<td></td>
<td>Memphis, TN 38103</td>
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</tr>
</tbody>
</table>
### TABLE II
**TERMS COMMONLY USED IN ADMISSION AND REGISTRATION PROCEDURES AT UTK**

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Admission</strong></td>
<td>The process of being admitted to UTK as a university student with the opportunity to take classes. (See page 11)</td>
</tr>
<tr>
<td><strong>Association</strong></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 14)</td>
</tr>
<tr>
<td><strong>Progression</strong></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 19). 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. |
| **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 19). |
| **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 19). |
| **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 13). |
| **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 16). |
| **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 "quality points" per quarter hour of credit for an "A" grade ranging to 1 quality point per quarter hour of credit for a "D" grade (see page 16). |
Grade point
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 16). High schools have a similar procedure for computing an average on the numerical grading scale (often abbreviated as HSGPA).

AP exam
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 12.)

CLEP test
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 22 for statements on acceptance of CLEP test scores for academic credit at UTK.

Proficiency exam
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 22 for details.

TOEFL test
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 12 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 18540

English Proficiency Test
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 12.)

University honors course
A non-departmental enrichment course available (by invitation only) from the College of Liberal Arts (page 188).

Honors course or section
A version of a regular course reserved for students with superior preparation for that course. See, for example, English honors (p. 180); Chemistry honors (p. 170); Mathematics honors (p. 190); History honors (p. 186).

Evening school
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 92).

Major
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.

Minor
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.

Concentration
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.

Option
A concentration of elective courses within a major which emphasizes one aspect of the major, chosen by a student according to his/her interests.

Accredited
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.
<table>
<thead>
<tr>
<th>Admissions Category</th>
<th>Admissions Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRESHMAN In-state</td>
<td>Applicants must have high school grade point average of at least 2.00 and ACT composite score of at least 12 (combined SAT score of 600).</td>
</tr>
<tr>
<td>FRESHMAN Out-of-State</td>
<td>Applicants must have high school grade point average of at least 2.25 and ACT composite score of at least 18 (combined SAT score of 780).</td>
</tr>
<tr>
<td>FRESHMAN—GED Diploma</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 General Education Development Test. High school transcript(s) showing all work completed must be submitted.</td>
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<tr>
<td>FRESHMAN—EARLY ADMISSION</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. Application is subject to review and approval by the Director of Admissions following an interview.</td>
</tr>
<tr>
<td>FRESHMAN RE-ENTRY</td>
<td>Must have graduated from high school at least 3 years prior to application. Submit transcript, be interviewed by UTK admissions counselor or respond to written questionnaire, as requested. ACT scores not required for admission, but may be needed for association.</td>
</tr>
<tr>
<td>TRANSFER In-state</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 attended; transfer grade point average of at least 2.00.</td>
</tr>
<tr>
<td>TRANSFER Out-of-state</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 admissions decision made by the College Committee on Admissions.</td>
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<tr>
<td>INTERNATIONAL</td>
<td>Refer to “International Student Applicants” in text.</td>
</tr>
<tr>
<td>VISITING</td>
<td>Refer to “Visiting Student Applicants” in text. One quarter limit in this category at UTK unless special permission is given by the Director of Admission.</td>
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<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 school class must have graduated (this is not an early admissions category).</td>
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### 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>
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</table>
| Institute of Agriculture  
College of Agriculture | Agricultural Biology |  | 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 | 1. Business and Industry Option  
2. Production and Processing Option | Bachelor of Science in Agricultural Engineering |
| Agricultural Extension Education | 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 |
| Ornamental Horticulture and Landscape Design | Ornamental Horticulture and Landscape Design |  | Bachelor of Science in Ornamental Horticulture and Landscape Design |
| Plant and Soil Science | Plant and Soil Science |  | Bachelor of Science in Agriculture |
| Institute of Agriculture  
College of Veterinary Medicine | Animal Science—Veterinary Medicine | Veterinary Medicine | Doctor of Veterinary Medicine |
| Environmental Practice  
Microbiology—Veterinary Medicine  
Pathobiology  
Rural Practice  
Urban Practice  
Veterinary Medicine (Interdepartmental Unit) | Veterinary Medicine |  | Doctor of Veterinary Medicine |
| School of Architecture  
School of Architecture | Architecture¹ | Architectural Design | Bachelor of Architecture |
| College of Business Administration  
Accounting and Business Law | Accounting | Accounting Management Science Option | Bachelor of Science in Business Administration |
| Business Administration (Interdepartmental Unit) | General Business | General Business Management Science Option | Bachelor of Science in Business Administration |
| Public Administration |  |  | Bachelor of Science in Business Administration |
| Economics | Economics |  | Bachelor of Science in Business Administration |

¹Minor available for students in other colleges.
<table>
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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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<td>Finance</td>
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<td>Real Estate</td>
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<td>Corporate Financial Management</td>
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<td>Banking and Financial Institutions</td>
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<td>Finance/Management Science Option</td>
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<td>Operations Management</td>
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<td>Operations Management/Management Science Option</td>
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<td>News and Public Affairs Sequence</td>
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<td>News-Editorial Sequence</td>
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<td>Vocal Music (Voice Principal)</td>
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<td>Music Education</td>
<td>Vocal Music (Piano or Organ Principal)</td>
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<td>Elementary Music Education (Voice Principal)</td>
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<td>Elementary Music Education (Piano or Organ Principal)</td>
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<td>c. Kinesiology/Biomechanics</td>
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<td>d. Sport Philosophy</td>
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<td>Chemical, Metallurgical, and Polymer Engineering</td>
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<td>Soils Engineering—Materials</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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²Minor available: Driver and Traffic Safety Education.
³Minor available.
⁴Minor available: Coaching.
<table>
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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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<td>Engineering Physics</td>
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<td>Bachelor of Science in Engineering Physics</td>
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<td>Engineering Studies</td>
<td>Industrial Engineering</td>
<td>Aerospace Engineering</td>
<td>Bachelor of Science in Engineering Science</td>
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<tr>
<td>Mechanical and Aerospace Engineering</td>
<td>Mechanical Engineering</td>
<td>Aerospace Energy, Environment, Machine Design, Manufacturing, Propulsion</td>
<td>Bachelor of Science in Mechanical Engineering</td>
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<td>Nuclear Engineering</td>
<td>Nuclear Engineering</td>
<td>Aerospace Engineering</td>
<td>Bachelor of Science in Nuclear Engineering</td>
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<td>1. Nutrition and Food Sciences, 2. Coordinated Undergraduate Program in Dietetics (ADA)</td>
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<td>Textiles, Merchandising and Design</td>
<td>Interior Design</td>
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<td>Law</td>
<td>Dual J.D.—M.B.A. Degree Program</td>
<td>Doctor of Jurisprudence</td>
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<td>College of Liberal Arts</td>
<td>Anthropology</td>
<td>Cultural Anthropology, Physical Anthropology, Archaeology</td>
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<td>Art</td>
<td>Studio</td>
<td>Ceramics, Graphic Design/Illustration, Drawing, Fiber-Fabrics, Inter-Area, Painting, Printmaking, Sculpture, Watercolor</td>
<td>Bachelor of Fine Arts</td>
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*Minor available: Business.
*Business minor available to programs in Bachelor of Arts degree.
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<th>DEPARTMENT (UNIT)</th>
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<th>CONCENTRATION/OPTION/TRACK ETC. WITHIN THE MAJOR</th>
<th>DEGREE</th>
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³Minor available in Women’s Studies and Cinema Studies, certificate available in Asian Studies.
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<td>2. Organ</td>
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<td>3. Church Music (organ and piano)</td>
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<td>4. Church Music (voice)</td>
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<td>5. Piano</td>
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<td>6. Multiple Keyboard instruments</td>
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<td>(piano, organ, harpsichord)</td>
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<td>7. Strings</td>
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<td>8. Voice</td>
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<td>9. Woodwind, Brass, and Percussion Instruments</td>
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<td>10. Studio Music and Jazz</td>
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<td>11. Suzuki String Pedagogy</td>
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<td>12. Electronic Music Composition</td>
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<td>Pre-Cytotechnology</td>
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<td>Pre-Dental Hygiene</td>
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<td>3. Pre-professional</td>
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<td>4. Research Analyst</td>
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<td>5. Human Management</td>
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<td>6. Criminal Justice</td>
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*Minor Available in Portuguese.
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<th>CONCENTRATION/OPTION/TRACK ETC. WITHIN THE MAJOR</th>
<th>DEGREE</th>
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<tbody>
<tr>
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<td>Bachelor of Science in Nursing</td>
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<td>Graduate School of Library and Information Science</td>
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<tr>
<td>Minor available to Students in College of Education and the College of Liberal Arts.</td>
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</table>
Graduate Studies

The College of Law
Kenneth L. Penegar, Dean
Mary Jo Hoover, Associate Dean
Julia P. Hardin, Assistant Dean
N. Douglas Wells, Assistant Dean

The College of Law has, since 1890, continuously sought to provide high quality legal education in a university community. The college offers a professional curriculum leading to the degree of Doctor of Jurisprudence. The College of Law and the College of Business Administration offer a coordinated dual degree program leading to the conferred of both the Doctor of Jurisprudence and the Master of Business Administration degrees.

Information regarding admission, financial aid, academic policies, extracurricular activities, and student services is available in the "College of Law Bulletin." A copy may be obtained from the Admissions Office, The University of Tennessee, College of Law, 1505 W. Cumberland Avenue, Knoxville, Tennessee 37996. Completed application should be received before February 1 of the year of expected admission.

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 of Doctor of Veterinary Medicine (D.V.M.). The college offers graduate studies leading to the degrees of Master of Science (M.S.) and Doctor of Philosophy (Ph.D.). Residency training programs in the various clinical specialties are also offered. The Graduate Catalog contains complete information concerning the programs in the college.

Forms and instructions for making application for admission may be obtained from the Director of Admissions, 202 Student Services Building, The University of Tennessee, Knoxville, Tennessee 37996. Applications must be received by January 15 of the year of expected admission. All pre-veterinary requirements must be completed by the end of the spring term of the year in which the student plans to enroll in the college.

The Graduate School
Clarence W. Minkel, Vice Provost and Dean of the Graduate School
Mary P. Richards, Associate Dean of the Graduate School
Thomas H. Klindt, Assistant Dean of the Graduate School
Diana Lopez, Director, Graduate Admissions and Records
Rose Ann Trantham, Assistant Director, Graduate Admissions and Records

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 109 fields of specialization and doctoral work in 51. 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 of the Graduate School. Much of the day-to-day administration of graduate study is conducted by department heads or faculty advisors 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 throughout 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 Office of Graduate Admissions and Records, 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

Full-Time Faculty
Professors:
D. Billen, Ph.D. Tennessee; D. E. Olins, Ph.D. Rockefeller.

Assistant Professor:
C. Sounoff, Ph.D. California (Los Angeles)

Research Professor:
A. L. Olins, Ph.D. New York

Research Associate Professor:
C. T. Hadden, Ph.D. Washington.

The Graduate School of Biomedical Sciences publishes supplementary information in addition to the regular Graduate Catalog. All inquiries concerning admission should be addressed to: Director, The University of Tennessee-Oak Ridge Graduate School of Biomedical Sciences, Biology Division,
### Majors and Degree Programs

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<td>Agricultural Mechanization</td>
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<td>Entomology and Plant Pathology</td>
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<td>Food Technology and Science</td>
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<td>Forestry</td>
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<td>Ornamental Horticulture and Landscape Design</td>
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<td>Plant and Soil Science</td>
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<td>Wildlife and Fisheries Science</td>
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<td>Food Science</td>
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<td>Food Systems Administration</td>
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<td>Interior Design and Housing</td>
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<td>Nutrition</td>
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<td>Textiles and Clothing</td>
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<td>Comparative and Experimental Medicine</td>
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<td>Ecology</td>
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<td>Industrial and Organizational Psychology</td>
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<td>Life Sciences</td>
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<td>German Language and Literature History</td>
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<td>Mathematics</td>
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<td>Microbiology</td>
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<tr>
<td>Philosophy</td>
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<tr>
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</table>
ORNL, P.O. Box Y, Oak Ridge, Tennessee 37830. Consult the Graduate Catalog for listing of graduate level courses.

Comparative and Experimental Medicine

Joint Graduate Coordinating Committee: H. Kitchen (Chairperson); J.E. Fuhr; R.A. Griesemer; 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 their 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, class discussions, and case reports surveying major topics of oncology. Prereq: Biology 3110-20 or consent of instructor.

4310 Introduction to Hematology (3) 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 Consult the Graduate Catalog for listing of graduate level courses.

Energy, Environment, and Resources Center

Director: E. W. Colglazier, Jr., Ph.D. California Institute of Technology

The Energy, Environment, and Resources Center was created to encourage interdisciplinary research at UTK, directed at solutions to problems related to energy, the environment, and resource issues. 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. The Center has a close working relationship with Oak Ridge National Laboratory and the Tennessee Valley Authority.

Graduate School of Library and Information Science (620)

Ann E. Prentice, Director


Assistant Professors: M. H. Karrenbrock, Ph.D. University of Georgia; M. S. Stephenson, Ph.D. 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 advisors. The undergraduate minor is planned for the following groups 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, 4230, 4140, 4150, 4270, 4330, 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 3510.)

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

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

4370 Organization of Library Collections I (6) Acquisitions, cataloging, and maintenance of library collections.

4310 History of the Book (3) History of writing and various methods of bookmaking from earliest times through 19th century.

4320 Adult Materials and Reading Interests (3) Fiction and subject categories; popular and standard; evaluation of materials to meet adult interests; consideration of selection aids.

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 Consult the Graduate Catalog for listing of graduate level courses.

Life Sciences

Coordinating Council: W. H. Calhoun (Chair); Animal Physiology: H. G. Welch; Cellular, Molecular and Developmental Biology: J. M. Becker; Environmental Toxicology: W. R. Farkas; Ethology: G. M. Burghardt; Plant Physiology & Genetics: O. J. Schwartz.

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, molecular and development biology, environmental toxicology, and plant physiology and genetics. 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)

J. A. Spencer, Director


Associate Professor: G. E. Bowen, M.A. George Washington; D. P. Middendorf, Ph.D. Tennessee.

Assistant Professors: P. Fisher, Ph.D. Florida State; A. Loebl, Ph.D. Missouri.

The Graduate School of Planning offers a program of studies leading to the profes-
Space Institute
Kenneth E. Harwell, Dean
Arthur A. Mason, Associate Dean

Professors:
M. All, Ph.D. Aligarh University (India); F. G. Collins, Ph.D. University of California (Berkeley); L. W. Crawford, Ph.D. Cincinnati; J. B. Dicks, Jr.; Ph.D. Vanderbillet; W. M. Farmer, Ph.D. Tennessee; W. Frost, Ph.D. Washington; G. W. Garrison, Ph.D. North Carolina State; B. H. Goethert (Emeritus); Ph.D. Technical University of Berlin; K. E. Harwell (Dean), Ph.D. California Institute of Technology; W. H. Heiser, Ph.D. Massachusetts Institute of Technology; D. R. Keeler, Ph.D. University of Florida; M. Kurosaka, Ph.D. California Institute of Technology; J. W. L. Lewis, Ph.D. University of Mississippi; A. A. Mason, Ph.D. Tennessee; C. E. Peters, Ph.D. University of Brussels; C. C. Reddy, Ph.D. Indian Institute of Technology (India); F. Shahrooki, Ph.D. Oklahoma; J. D. Westbrook, Ph.D. Virginia Polytechnic Institute; M. A. Williams, Ph.D. Yale Graduate School; J. M. Wu, Ph.D. California Institute of Technology; Y. C. L. Wu, Ph.D. California Institute of Technology; R. L. Young, Ph.D. Northwestern.

Associate Professors:
B. N. Antar, Ph.D. University of Texas; J. E. Caruthers, Ph.D. Georgia Institute of Technology; H. W. Crater, Ph.D. Yale; R. A. Crawford, Ph.D. Tennessee; R. C. Engels, Ph.D. Virginia Polytechnic Institute; J. H. Hanson, Ph.D. Missouri; R. D. Joseph, Ph.D. Case Institute of Technology; R. D. Kimberlin, M.S. Tennessee; K. R. Kimble, Ph.D. Ohio State; H. H. Koni, Ph.D. State; B. A. Kupershmidt, Ph.D. Massachusetts Institute of Technology; T. H. Moulden, Ph.D. Tennessee; C. T. Paludan, Ph.D. Denver; A. Pujol, Ph.D. Vanderbillet; R. J. Schulz, Ph.D. Tennessee; A. C. Sheth, Ph.D. Northwestern; J. S. Steinhoff, Ph.D. Chicago.

Assistant Professors:

*Alumni Distinguished Service Professor

The University of Tennessee Space 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, mathematics, and computer science. The Institute occupies a 365 acre lakeshore campus near the U.S. Air Force Arnold Engineering Development Center, Tullahoma, Tennessee. Graduate degree programs are available in majors of Aerospace Engineering, Aviation Systems, Chemical Engineering, Computer Science, Electrical Engineering, Engineering Science and Mechanics, Industrial Engineering (Engineering Management Option), Mathematics, Mechanical Engineering, and Physics.

In addition to the fundamental studies characteristic of each discipline, research opportunities for theses and dissertations are available in many aspects of atmospheric and space flight such as aerodynamics, atmospheric science, propulsion, flight performance, fluid dynamics, gas diagnostics by spectroscopic and electro-optic techniques, laser applications, thermal sciences, energy conversion, remote sensing, computational mechanics, knowledge engineering and computer graphics. The faculty, research activities and facilities of the Institute provide students with an unusual opportunity to participate in significant research in these areas. Students who enroll at UTNI are admitted to The Graduate School, UTK. Graduate research assistantships are available for qualified students. Further information may be obtained by contacting the Admissions Officer, The University of Tennessee Space Institute, Tullahoma, Tennessee 37388-3897 (615-455-0331). Consult the Graduate Catalog for listing of graduate level courses.

Transportation Center
Director:
M. S. Bronzini, Ph.D. Pennsylvania State, P.E.

Associate Director:
D. P. Middendorf, Ph.D. Tennessee.

Assistant Directors:
J. D. Beeson, B.S. Emporia; D. H. Jones, M.S. Tennessee, P.E.

Research Engineer:
S. H. Richards, M.E. Texas A&M, P.E.

The Transportation Center, utilizing an interdisciplinary approach to transportation research, brings together highly qualified faculty and students in a setting conducive to the solution of problems associated with the transportation of goods and people. The Center provides support for undergraduate and graduate students, as well as faculty, in projects associated with research in the field of transportation. Such support, while providing needed financial assistance to students, enables the Transportation Center to undertake research that ultimately contributes to the solution of the nation's transportation problems.

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.
Institute of Agriculture

W. W. Armistead, Vice President
B. H. Pentecost, Assistant Vice President

The Institute of Agriculture traces its history to 1869 when the University was designated as Tennessee's Federal Land-Grant Institution. Under terms of the Federal Land-Grant Act, the University was enabled 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:

Ames 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 Cumberland 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 darkfired 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 Greenville. 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 asso-
ciliated with fruit and vegetable production and dairy production. The USDA/SEA-AR cooperates with research on the soybean cyst nematode.

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.

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 Forestry, Bachelor of Science in Ornamental Horticulture and Landscape Design, and Bachelor of Science in Wildlife and Fisheries Science. The professional degree program in agricultural engineering receives 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 agricultural business, agricultural economics and rural sociology, agricultural education, agricultural mechanization, animal science, food technology and science, 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 advisor.

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 degrees of 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 200 quarter-hour credits.

The use of transfer credit in technical agriculture appropriate to each organized curriculum will be considered and approved by the advisor 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 unnecessary repetition. Such examinations should be taken during the first quarter in residence and must be requested 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 program, and approved by the major advisor, must be completed 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 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 admission 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. Facilities on the agricultural campus are found in 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 greenhouse and experimental work. 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 (60 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 Col-


le. Cherokee Woodlot (120 acres), the Oak Ridge Forest (2,260 acres), and Ames Plantation (8,000 acres of forested land) provide excellent facilities for field work in forestry, wildlife, etc. 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 the change between classes without serious inconvenience.

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 adaptable to their needs when they register as freshmen, and an advisor from the department will be assigned for their counseling. It is 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 advisor 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 advisor will be assigned from that department.

Students with special interest in science, business, or production technology should consult the advisor 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 advisor and the agricultural-extension advisor should be consulted.

A very careful choice of electives enables a student with an average academic record to complete a double major by satisfying all the requirements in each curriculum. For this purpose, the advisors of each curriculum should be consulted, the dean of the College of Agriculture should be informed, and each advisor 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 the double major and without the necessity of credit hours at the 3000 and 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 advisor. Requests for substitutions or special examinations should be submitted for consideration during the first quarter of study in the selected curriculum.

Basic Curriculum for Agriculture

All students except those majoring in Food Technology and Science working for the 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 advisor.

Hours Credit

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<tr>
<th>Course Title</th>
<th>Credit Hours</th>
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<tr>
<td>Agriculture 1110. Introduction to Social Science for Agriculture</td>
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</tr>
<tr>
<td>Agriculture 2110. Introduction to Agricultural Engineering</td>
<td>4</td>
</tr>
<tr>
<td>Agriculture 1130. Animal Science for Agriculture</td>
<td>4</td>
</tr>
<tr>
<td>Agriculture 1410. Food Technology and Science for Agriculture</td>
<td>4</td>
</tr>
<tr>
<td>Agriculture Science. (courses listed in department curricula)</td>
<td>26</td>
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<tr>
<td>English and Communications. (English 1010 or 1011; 1020 or 1033, Speech 2321, and electives in English literature or communications)</td>
<td>18</td>
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<tr>
<td>Mathematics 1540-50-60. (general mathematics)</td>
<td>12</td>
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<tr>
<td>Biological Science. (entomology and plant pathology, biology, botany, microbiology, or zoology)</td>
<td>12</td>
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<tr>
<td>Physical Science. (Chemistry 1110-20-30 or 1510-20-30 and physics or geology)</td>
<td>16</td>
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<tr>
<td>Social Science and Humanities. (Economics 2510-20 and electives, 10 hours not more than 3 areas)</td>
<td>18</td>
</tr>
<tr>
<td>Other Courses or Electives Hours Specified By Departments</td>
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</tr>
</tbody>
</table>

Total: 198

| Or equivalent honors courses. |
| The Mathematics 1840-50-60 sequence may be necessary in some courses of study. |
| Exception—See Agricultural Business and Agricultural Economics. |

The five basic courses in agriculture are not departmental, but the course outlines are evaluated and approved by the Agricultural Economics and Rural Sociology departments.

COURSE LOAD

Students desiring to take more than 19 hours per quarter must have the approval of the dean of the college.

Agricultural Economics and Rural Sociology

AGRICULTURAL BUSINESS CURRICULUM

Advisors: Professors Martin, Brooker, McLemore, Mundy. Associate Professors: Professors: Park and Whipple. Assistant Professor: Markley.

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 credit, livestock and 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 2510-20, Agricultural Economics 3120 or 3320, Agricultural Economics 3410 or Accounting 2110, Agricultural Economics 4120 or 4810, 13 hours of Agricultural Economics and Rural Sociology electives.

Hours Credit

<table>
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<tr>
<td>English 1010 or 1011; 1020 or 1033</td>
<td>8</td>
</tr>
<tr>
<td>Mathematics 1540-50-60 or 1840-50-60</td>
<td>12</td>
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<tr>
<td>Economics 2510-20</td>
<td>8</td>
</tr>
<tr>
<td>Biological science elective</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 1110-20 or 1510-20 and Physics 1210-20 or Geology 1410-20 or Chemistry 1110-20-30 or 1510-20-30 and Physics 1210 or Geology 1410</td>
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<tr>
<td>Computer Science 1410 or 1510 or Office Administration 2750</td>
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<tr>
<td>Economics 2510-20</td>
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<tr>
<td>Non-departmental social science and humanities electives</td>
<td>4</td>
</tr>
<tr>
<td>Speech 2321</td>
<td>4</td>
</tr>
<tr>
<td>Statistics 2100</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>4 or 5</td>
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Junior

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>Accounting 2110-20-30</td>
<td>9</td>
</tr>
<tr>
<td>Agricultural Economics 3320</td>
<td>3</td>
</tr>
<tr>
<td>Agricultural economics and rural sociology elective</td>
<td>3</td>
</tr>
<tr>
<td>Economics 3110</td>
<td>3</td>
</tr>
<tr>
<td>Journalism 2210</td>
<td>3</td>
</tr>
<tr>
<td>Non-departmental agricultural electives</td>
<td>6</td>
</tr>
<tr>
<td>Non-departmental social science and humanities electives</td>
<td>8</td>
</tr>
</tbody>
</table>
Agricultural economics and rural sociology

Agricultural Economics 4140, 4320, 4120 or 4610...9
Agricultural economics and rural sociology electives...12
Agricultural Economics 4710 or Business Law 4110...4 or 3
Economics 3120...3
Office Administration 4320...3
Non-departmental agricultural electives...3
*Business administration electives...6
Electives...9 or 10

Total: 198 hours

*Agricultural Education

Advisors: Professors Wiegens and Craig; Associate Professor Todd

The curriculum in agricultural education is planned in cooperation with the College of Education. All agricultural education courses are offered in the College of Education.

This curriculum is designed to prepare students for entering professional agricultural educational service. Graduates are qualified to teach vocational agriculture. The curriculum also provides training for those who wish to enter farming, industry, and governmental services associated with agriculture, and other occupations.

The senior courses in agricultural education (except Ag. Ed. 4110) are taught at selected off-campus centers. These courses are scheduled concurrently each quarter during the regular school year.

Students should file applications for student teaching in the College of Education. (See admission to Teacher Education and Student Teaching section.)

Students meeting the requirements for general vocational agriculture certification may secure endorsements in ornamental horticulture and agricultural mechanics by meeting the following requirements:

Ornamental Horticulture—18 quarter hours of courses in ornamental horticulture and landscape design and/or plant and soil science. Subject matter areas must include plant propagation, greenhouse management, growing media, landscape design, and nursery management.

Agricultural Mechanics—18 quarter hours of courses in agricultural mechanization. Subject matter areas must include agricultural power and machinery, soil and water conservation, and agricultural structures.

Freshman

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture 1110-20-30-40-50...20</td>
</tr>
<tr>
<td>Biology 1210-20...8</td>
</tr>
<tr>
<td>English 1010 or 1011; 1020; 1030 or 1032 or 1033...9</td>
</tr>
<tr>
<td>Mathematics 1540-50-60 or 1840-50-60...12</td>
</tr>
<tr>
<td>Sophomore</td>
</tr>
<tr>
<td>Agricultural economics 2410...3</td>
</tr>
<tr>
<td>Biology and science electives...4</td>
</tr>
<tr>
<td>Chemistry 1110-20 or 1510-20 and Physics 1210-20 or Geology 1410-20 or Chemistry 1110-20 or 1510-20 and Physics 1210 or Geology 1410...16</td>
</tr>
<tr>
<td>Computer Science 1410 or 1510 or Office Administration 2750...3 or 4</td>
</tr>
</tbody>
</table>

Senior

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Economics 3120...3</td>
</tr>
<tr>
<td>Agricultural economics and rural sociology electives...6</td>
</tr>
<tr>
<td>Economics 3111-12-20 or Economics 3110-20 and 3 hours economics electives...9</td>
</tr>
<tr>
<td>Non-departmental agricultural electives...6</td>
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<tr>
<td>*Non-departmental social science and humanities electives...8</td>
</tr>
<tr>
<td>Rural Sociology 3420...3</td>
</tr>
<tr>
<td>Statistics 3110...3</td>
</tr>
<tr>
<td>Electives...12</td>
</tr>
</tbody>
</table>

Total: 198 hours

*Agricultural Engineering

AGRICULTURAL ENGINEERING CURRICULUM

Advisors: Professors Luttrell, Bledsoe, Henry, McDow, 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 in geometry, and one-half unit in trigonometry. Students may remove deficiencies by registering for special classes during the freshman year.

The curriculum gives training in the fundamentals of engineering applied to problems of agriculture. In the senior year, the comprehensive design project culminates in a special class during the spring semester. 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>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture 1110-20-30-40-50...20</td>
</tr>
<tr>
<td>English 1010 or 1011; 1020; 1031 or 1032 or 1033...9</td>
</tr>
<tr>
<td>Mathematics 1540-50-60...12</td>
</tr>
<tr>
<td>Sophomore</td>
</tr>
<tr>
<td>Agriculture 1150...4</td>
</tr>
<tr>
<td>Entomology and Plant Pathology 3210...4</td>
</tr>
<tr>
<td>Plant and Soil Science 2130...4</td>
</tr>
<tr>
<td>Chemistry 1110-20 or 1510-20 and Economics 2510-20...8</td>
</tr>
<tr>
<td>Psychology 2500, and Educational Psychology 3110 and equivalent...8</td>
</tr>
<tr>
<td>Microbiology 2910-11...4</td>
</tr>
<tr>
<td>Speech 2311...4</td>
</tr>
<tr>
<td>*Physical education or health electives...3</td>
</tr>
<tr>
<td>Junior</td>
</tr>
<tr>
<td>Agricultural Education 3450-60-70...9</td>
</tr>
<tr>
<td>Educational Psychology 3810...3</td>
</tr>
<tr>
<td>Educational C. &amp; I. 2020...3</td>
</tr>
<tr>
<td>Animal Science 3310...3</td>
</tr>
</tbody>
</table>

Total: 198 hours
Agricultural products, materials, and services related to agricultural, extension, sales, and training related to government, and educational institutions.

obtain either a broad or a highly specialized advisor, may structure their program to encompass power and machinery, electrical engineering, agricultural science, and business, sociology, psychology, or fine arts (not more than 4.) Humanities-social studies electives may be taken. Humanities-social studies electives must be planned by the student and approved by the student's advisor prior to registration in the course. The selection of technical electives must have approval of the student's advisor prior to registration in the course.

Total: 200 hours

Or equivalent honors course.

Or equivalent honors course.

A program of humanities-social studies electives must be planned by the student and approved by the student's advisor. This program should be prepared and approved before the end of the sophomore year and before electives are taken. Humanities-social studies electives may be taken from such areas as history, economics, government, literature, sociology, psychology, or fine arts (not more than three areas).

The selection of technical electives must have approval of student's advisor prior to registration in the course.

AGRICULTURAL MECANIZATION CURRICULUM

Advisors: Professors Luttrell, Bledsoe, Henry, McDow, Tompkins and Wilhelm. Associate Professors: Mote and Von Bernuth.

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 advisor, 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. Minor in Agricultural Mechanization consists of 28 hours as follows: 2110, 2130, 3110, 3210, 3220, 4210, and any three (3) courses from the following: 3510, 3560, 4160, 4170, 4810. Prerequisites will not be waived.

Freshman Hours Credit

Agriculture 1110-20-30-40-50-60 20

Mathematics 1540-50-60 12

Sophomore

Agricultural Mechanization 2110 3

Agricultural Mechanization 2130 3

Animal Science 2810 3

Chemistry 1110-20-30 or 1510-20-30 12

Economics 2510-20 6

Journalism 2210 3

Physics 1210-20 6

Plant and Soil Science 2130 4

Speech 2311 3

English or communications elective 3

Junior

Accounting 2110 3

Entomology and Plant Pathology 2310 4

Agricultural Mechanization 3100 1

Agricultural Mechanization 3110 3

Agricultural Mechanization 3120 1

Agricultural Mechanization 5310 or 3560 4 or 3

Computer Science 1410 or Office Administration 2750 3

Microbiology 2910 3

Plant and Soil Science 3220 4

Social science or humanities electives 4

Option electives 4

Electives 9 or 10

Senior

Agricultural Economics 3410 or 3440 or 3810 3

Agricultural Economics 4710 4

Agricultural Mechanization 4120 1

Agricultural Mechanization 4130 1

Agricultural Mechanization 4140 1

Agricultural Extension 3130 3

Food Technology and Science 3020 or 3840 or 4410 4

3Special science or humanities electives 6

Option electives 4

Electives 9

Total: 198 hours

Agricultural Extension Education

Advisors: 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 special guidance for those with emphasis in agricultural extension education.

Animal Science

Advisors: Professors Barth, Erickson, Lidvall, McLaren, Montgomery, Richardson, Shirley, Shrode; Associate Professors Backus, Hitchcock, Kattech, Masincupp, Robbins, Waller; Assistant Professors Bell, Godkin, Heitmann, Oliver, and Smalling.

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, therefore, may prepare for general or livestock farming, management, business, or select courses for 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 the 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 4300 course and one 4800 course.
### Institute of Agriculture

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 livestock.

**Freshman**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agribusiness 1110, 1130, 1140</td>
<td>12</td>
</tr>
<tr>
<td>Biology 1210, 1230</td>
<td>8</td>
</tr>
<tr>
<td>*Chemistry 1110, 1120, or 1510-20</td>
<td>8</td>
</tr>
<tr>
<td>*English 1010 or 1011; 1020; 1031 or 1032 or 1033</td>
<td>12</td>
</tr>
</tbody>
</table>

**Sophomore**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture 1120, 1150</td>
<td>8</td>
</tr>
<tr>
<td>Animal Science 2610, 2610 (core requirement)</td>
<td>7</td>
</tr>
<tr>
<td>*Chemistry 1130 or 1530, and 3211-19 or 2230, or Biochemistry 3110, or Nutrition 3130</td>
<td>8</td>
</tr>
<tr>
<td>Economics 2510-20</td>
<td>8</td>
</tr>
<tr>
<td>Microbiology 2910-11</td>
<td>4</td>
</tr>
<tr>
<td>Plant and Soil Science 2130</td>
<td>4</td>
</tr>
<tr>
<td>Physics</td>
<td>4</td>
</tr>
<tr>
<td>Speech 2311 and communications elective</td>
<td>7</td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
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</table>

**Junior**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Non-animal science agricultural electives</td>
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<tr>
<td>Animal science (core requirement: Animal Science 3210, 3220, 3320, 3330, 4140, 4142, 3510)</td>
<td>24</td>
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<tr>
<td>Directed electives—evaluation</td>
<td>3</td>
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<tr>
<td>Communications elective</td>
<td>3</td>
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**Senior**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Non-animal science agricultural electives</td>
<td>6</td>
</tr>
<tr>
<td>Animal Science 4810 (core requirement)</td>
<td>17</td>
</tr>
<tr>
<td>Directed electives</td>
<td>27</td>
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<tr>
<td>Humanities-social science electives</td>
<td>6</td>
</tr>
</tbody>
</table>

Total: 198 hours

1* Students with a strong math background may omit Math

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**PRE-VETERINARY MEDICINE OPTION CURRICULUM**

**Advisors:** Professors Barth, Erickson, Lidwall, McClaren, Montgomery, Richardson, Shirley, Shrode; Associate Professors Backus, Hixoncock, Kattesh, Masincup, Robbins, Waller; Assistant Professors Bell, Godkin, Heitmann, Oliver, Smalleg

This program is designed to guide the student in meeting the admissions requirements of The University of Tennessee College of Veterinary Medicine. The completion of specific subject matter requirements and the attainment of a satisfactory grade point average comprise the minimum requirements for entrance into the professional curriculum of the College of Veterinary Medicine. However, each year the number of applicants is much greater than the number of available spaces. Therefore, meeting or surpassing the minimum requirements does not assure acceptance by the College of Veterinary Medicine, and each pre-veterinary medical student should, early in the college career, elect a possible alternative career choice. The admission requirements listed below are those required by The University of Tennessee College of Veterinary Medicine. Their completion will generally fulfill the requirements for other veterinary colleges. However, students intending to apply to schools other than The University of Tennessee should check the requirements of those specific schools. Students interested in applying to The University of Tennessee College of Veterinary Medicine must complete a minimum of 120 hours. They must complete their pre-veterinary requirements by the end of the spring quarter of the year in which they are applying. It is strongly recommended that each interested student plan to pursue at least a three-year pre-veterinary program. Inquiries concerning possible course substitutions and the combining of the pre-veterinary program with a degree program should be directed to the department’s pre-veterinary advisors. It is possible for students who are accepted into the College of Veterinary Medicine at the end of their third year to receive a B.S. in Agriculture with a major in animal science upon successful completion of the first year in the College of Veterinary Medicine (3 and 1 program). See the College of Veterinary Medicine section in the Gradate Catalog for additional information.

A suggested schedule for the Pre-Veterinary Medicine—Animal Science student is given below which will (1) allow for the completion of the above pre-veterinary requirements by the end of the third year, and (2) allow the student to make normal progress toward completing the requirements for a degree in agriculture with a major in animal science and (3) to complete the requirements for the 3 and 1 program. It is strongly recommended that the student carry a normal load of at least 15 to 18 hours per quarter. See College of Veterinary Medicine admissions requirements for minimum course requirements for admission to the professional program in the College of Veterinary Medicine.

First year

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1010 or 1011; 1020; 1031 or 1032 or 1033</td>
<td>12</td>
</tr>
<tr>
<td>Mathematics 1540, 1550, 1560</td>
<td>12</td>
</tr>
<tr>
<td>Biology 1210-20-30</td>
<td>12</td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td>12</td>
</tr>
<tr>
<td>Agriculture 1130</td>
<td>4</td>
</tr>
<tr>
<td>Humanities-electives</td>
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</table>

Second year

<table>
<thead>
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<th>Course</th>
<th>Hours Credit</th>
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<tbody>
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<td>Chemistry 3211-21-31</td>
<td>9</td>
</tr>
<tr>
<td>Chemistry 3219-29-39</td>
<td>3</td>
</tr>
<tr>
<td>Physics 2210-20-30</td>
<td>12</td>
</tr>
<tr>
<td>Agriculture 1110</td>
<td>4</td>
</tr>
<tr>
<td>Economics 2510</td>
<td>4</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
</tr>
<tr>
<td>Animal Science 2610, 2610 (core requirement)</td>
<td>17</td>
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</tbody>
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Third year

<table>
<thead>
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<th>Course</th>
<th>Hours Credit</th>
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</thead>
<tbody>
<tr>
<td>Biochemistry 4110-20</td>
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<tr>
<td>Microbiology 2910-19</td>
<td>5</td>
</tr>
<tr>
<td>Economics 2520</td>
<td>4</td>
</tr>
<tr>
<td>Social science electives</td>
<td>4</td>
</tr>
<tr>
<td>Humanities-electives</td>
<td>6</td>
</tr>
<tr>
<td>*Animal science 3420, 3600 level evaluation (3 hrs), 4800 level production management (4 hrs). 10, 14</td>
<td></td>
</tr>
</tbody>
</table>

Total: 195 hours

1* Students with a strong math background may omit Math

2**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, other agriculture outside of animal science 6 hrs. (suggested Agricultural Mechanization 4160, Food Technology and Science 3840, Entomology and Plant Pathology 2910, Plant and Soil Science 3140).

3**Students wanting to complete pre-vet requirements, but wishing to major in a department other than animal science and agriculture should check the list of prerequisites for that major with the appropriate departmental advisor for a proper selection of electives.

### ANIMAL SCIENCE CURRICULUM WITH A PRE-VETERINARY MEDICINE OPTION

This program is designed for students accepted by the UT College of Veterinary Medicine after their 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 2510-20 and, under electives, complete Agriculture 1150 or equivalent food technology and science courses, Plant and Soil Science 2130, other agriculture other than animal science, six hours. (suggested: Agriculture Mechanization 4160, Food Technology and Science 3840, Entomology and Plant Pathology 3210, Plant and Soil Science 2130, Animal Science 2810, 5 hrs). The student is accepted to the UT College of Veterinary Medicine after three years and who wish to obtain the 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 in 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, other agriculture outside of animal science 6 hrs. (suggested Agricultural Mechanization 4160, Food Technology and Science 3840, Entomology and Plant Pathology 2910, Plant and Soil Science 3140).

4**Students wanting to complete pre-vet requirements, but wishing to major in a department other than animal science and agriculture should check the list of prerequisites for that major with the appropriate departmental advisor for a proper selection of electives.

### Entomology and Plant Pathology

**Advisors:** 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 the Graduate Catalog). Courses in economic entomology, plant pathology, insect physiology, microbiology, 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**

*Advisors: Professors Miles, Collins, Jaynes and S. Melton; Associate Professors: Davidson and 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. The primary objective of those 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, 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.

**Minor in Food Technology and Science** consists of 25-27 hours as follows: 3810 or 4610, 4130 or 4140, 4200, 4400 and three (3) elective Food Technology and Science courses numbered 2300 or above.

**Freshman**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture 1110-30-40 (choose two)</td>
<td>8</td>
</tr>
<tr>
<td>Agriculture 2110-21</td>
<td>4</td>
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<tr>
<td>Biology 1220</td>
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<tr>
<td>English 1010-20-33</td>
<td>9</td>
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<tr>
<td>Mathematics 1540-50-50</td>
<td>12</td>
</tr>
<tr>
<td>Physics 1210-20</td>
<td>8</td>
</tr>
<tr>
<td>Humanities-social studies elective</td>
<td>4</td>
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</tbody>
</table>

**Sophomore**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 1510-20-30</td>
<td>12</td>
</tr>
<tr>
<td>Economics 2510-20</td>
<td>8</td>
</tr>
<tr>
<td>Food Technology and Science 2300</td>
<td>3</td>
</tr>
<tr>
<td>Microbiology 2910-19</td>
<td>5</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
</tr>
<tr>
<td>Communications electives</td>
<td>6</td>
</tr>
<tr>
<td>Humanities-social studies electives</td>
<td>6</td>
</tr>
<tr>
<td><em>Commodity elective</em></td>
<td>3</td>
</tr>
<tr>
<td><em>Computer Science elective</em></td>
<td>3</td>
</tr>
</tbody>
</table>

**Junior**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Mechanization 3510</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 2230 or Nut. and Food Science 3130</td>
<td>3</td>
</tr>
<tr>
<td>Biochemistry 3110 or Nut. and Food Science 3140</td>
<td>3</td>
</tr>
<tr>
<td>Food Technology and Science 4130</td>
<td>3</td>
</tr>
<tr>
<td>Food Technology and Science 3810</td>
<td>4</td>
</tr>
<tr>
<td>Nut. and Food Science 3120</td>
<td>3</td>
</tr>
<tr>
<td>Nut. and Food Science 3150</td>
<td>4</td>
</tr>
<tr>
<td>Plant and Soil Science 3610</td>
<td>3</td>
</tr>
<tr>
<td>Statistics 3310</td>
<td>3</td>
</tr>
<tr>
<td><em>Commodity elective</em></td>
<td>3</td>
</tr>
<tr>
<td><em>Computer Science elective</em></td>
<td>6</td>
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</tbody>
</table>

**Senior**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Technology and Science 4010</td>
<td>3</td>
</tr>
<tr>
<td>Food Technology and Science 4140</td>
<td>2-3</td>
</tr>
<tr>
<td>4310, 4400, 4810, 4920</td>
<td>23</td>
</tr>
<tr>
<td>Nut. and Food Science 4010</td>
<td>3</td>
</tr>
<tr>
<td><em>Electives</em></td>
<td>21</td>
</tr>
</tbody>
</table>

Total: 198 hours

*Mathematics 1840-50-60 are desirable alternatives for students with suitable entrance scores. *Commodity electives (3 are required): one each in meats (3810, 3840, 4840, 4940), Dairy Products (3620, 3070, 4030); and one from 4140 or 4420. *Approved computer science electives are 1410, 1510, 3010, 4310 or equivalent. *Those students preparing for employment in commercial food industry should select electives from such areas as agricultural economics, economics, accounting, business law, management, marketing, finance and transportation. Students should consult with advisor before selecting electives.

*One hour course taken each of last three quarters in school.

**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, the art, and the 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 Biolog**—plant physiology and morphology, ecology, genetics, tree nutrition, forest soils.
- **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.

Upon completion of the four-year forestry curriculum the degree of Bachelor of Science in Forestry (B.S.F.) is awarded.

A minor in Forestry consists of 24 credit hours from any courses having a Forestry designation. Prerequisites will not be waived.

**Freshman**

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Botany 1110-20 or Biology 1210-20...</td>
</tr>
<tr>
<td>1English 1010 or 1011; 1020; 1031 or 1032 or 1033...</td>
</tr>
<tr>
<td>2Forestry 1620...</td>
</tr>
<tr>
<td>3Forestry 3000...</td>
</tr>
<tr>
<td>4Mathematics 1700, 1841-51...</td>
</tr>
<tr>
<td>5Physics 1210 and 1220 or 2210 and 2220...</td>
</tr>
<tr>
<td>7Speech 2311...</td>
</tr>
<tr>
<td>9-12Electives...</td>
</tr>
</tbody>
</table>

**Sophomore**

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>6Agricultural Mechanization 3140...</td>
</tr>
<tr>
<td>7Forestry 3060, 3110-20, 3230, 3260, 3320...</td>
</tr>
<tr>
<td>8Forestry 4002-03-04-05-06-07...</td>
</tr>
<tr>
<td>9-12Electives...</td>
</tr>
</tbody>
</table>

**Senior**

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>3Forestry 3240...</td>
</tr>
<tr>
<td>5Forestry 4150, 4210-20-30, 4320, 4340...</td>
</tr>
<tr>
<td>7Forestry 4530 or 4140, or Geography 3510...</td>
</tr>
<tr>
<td>10-27Electives...</td>
</tr>
</tbody>
</table>

Total: 198 hours

*Biology 1210-20 is recommended in lieu of botany for students interested in wildlife management.

*14 equivalent honors courses.

*Enough electives must be taken to total 198 hours including a minimum of 6 hours of communications electives selected from a Department of Forestry, Wildlife and Fisheries approved list and a minimum of 11 hours of social science courses and/or humanities.

**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 its use and the relationship of forest resources to the constructive utilization of leisure time.

**Freshman**

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Botany 1110-20 or Biology 1210-20...</td>
</tr>
<tr>
<td>1English 1010 or 1011; 1020; 1031 or 1032 or 1033...</td>
</tr>
<tr>
<td>Course</td>
</tr>
<tr>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>Forestry 1620</td>
</tr>
<tr>
<td>Forestry 3000</td>
</tr>
<tr>
<td>Mathematics 1700, 1841-51</td>
</tr>
<tr>
<td>Physics 1210 and 1220 or 2210 and 2220</td>
</tr>
<tr>
<td>Speech 2311</td>
</tr>
<tr>
<td><em>Sophomore</em></td>
</tr>
<tr>
<td><em>Chemistry 1510-20</em></td>
</tr>
<tr>
<td><em>Computer Science 1410</em></td>
</tr>
<tr>
<td><em>Economics 1510-20</em></td>
</tr>
<tr>
<td><em>Forestry 3040</em></td>
</tr>
<tr>
<td><em>Forestry 3050 or Ornamental Horticulture and Landscape Design 3810 or Botany 3030</em></td>
</tr>
<tr>
<td>Accounting 2110 or Political Science 3565 or 3566*</td>
</tr>
<tr>
<td>Sociology 1510</td>
</tr>
<tr>
<td>Sociology 3130 or 3010 or Rural Sociology 3420 or Psychology 3120*</td>
</tr>
<tr>
<td>Psychology 2500</td>
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<tr>
<td>Plant and Soil Science 2130</td>
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<tr>
<td>Journalism 2210</td>
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<tr>
<td><em>Electives</em></td>
</tr>
<tr>
<td><em>Sophomore</em></td>
</tr>
<tr>
<td>Forestry 3020, 3110, 3240, 3320, 4440</td>
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<tr>
<td>Wildlife and Fisheries Science 3230</td>
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<tr>
<td>Plant and Soil Science 3230</td>
</tr>
<tr>
<td>Forestry 3060 or Entomology and Pathology 3140 or 3210*</td>
</tr>
<tr>
<td>Agronomy 2410-20 or Plant Technology 2130</td>
</tr>
<tr>
<td>Speech 3011 or 3021 or Journalism 3710</td>
</tr>
<tr>
<td>Recreation 3140</td>
</tr>
<tr>
<td><em>Electives</em></td>
</tr>
<tr>
<td><em>Senior</em></td>
</tr>
<tr>
<td>Forestry 4150, 4210, 4230, 4240, 4330</td>
</tr>
<tr>
<td>Planning 4100</td>
</tr>
<tr>
<td>Ornamental Horticulture and Landscape Design 3610-20 or 3610</td>
</tr>
<tr>
<td>Forestry 4450</td>
</tr>
<tr>
<td><em>Electives</em></td>
</tr>
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</table>

Total: 198 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistics 3450-50</td>
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<tr>
<td>Industrial Engineering 2320</td>
<td>3</td>
</tr>
<tr>
<td>Computer Science 1510</td>
<td>4</td>
</tr>
<tr>
<td><em>Junior</em></td>
<td></td>
</tr>
<tr>
<td>Entomology and Plant Pathology 4140</td>
<td>3</td>
</tr>
<tr>
<td>Forestry 3250, 3020, 3110-20, 3230, 3060</td>
<td>8</td>
</tr>
<tr>
<td>Industrial Engineering 3610-20-30; 3430-40</td>
<td>15</td>
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<tr>
<td>Engineering Graphics 1410-20</td>
<td>6</td>
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<tr>
<td><em>Humanities-social science electives</em></td>
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</tr>
<tr>
<td><em>Communication elective</em></td>
<td>6</td>
</tr>
<tr>
<td><em>Senior</em></td>
<td></td>
</tr>
<tr>
<td>Industrial Engineering 4690, 4690, 4520</td>
<td>10</td>
</tr>
<tr>
<td>Entomology and Plant Pathology 3210</td>
<td>4</td>
</tr>
<tr>
<td>Forestry 4150, 4540-50-60</td>
<td>14</td>
</tr>
<tr>
<td>Accounting 2110</td>
<td>3</td>
</tr>
<tr>
<td><em>Humanities-social science electives</em></td>
<td>6</td>
</tr>
<tr>
<td><em>Technical electives</em></td>
<td>12</td>
</tr>
<tr>
<td><em>Electives</em></td>
<td>6</td>
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</tbody>
</table>

*Or equivalent honors courses.

*Twenty hours of electives to be taken from the following courses: Accounting 2110-20, 3515; Agricultural Economics 4330; Anthropology 2510-20; Astronomy 2510-20; Botany 3030, 3050, 4030, 4310; Business Law 4110; Civil Engineering 4290; Entomology and Plant Pathology 4930; Forestry 4230, 4340; Geology 1410-20, 2410; Ornamental Horticulture and Landscape Design 3210; Philosophy 2510-20; Plant and Soil Science 3250; Political Science 3565-66, 3930, 4930; Public Health 3310; Recreation 2120, 3220; Sociology 3910; Wildlife and Fisheries Science 4450, 4460, 4550; Zoology 3640, 4300.

*Or equivalent honors courses.

*Twenty hours of electives to be taken from the following courses: Accounting 2110-20, 3515; Agricultural Economics 4330; Anthropology 2510-20; Astronomy 2510-20; Botany 3030, 3050, 4030, 4310; Business Law 4110; Civil Engineering 4290; Entomology and Plant Pathology 4930; Forestry 4230, 4340; Geology 1410-20, 2410; Ornamental Horticulture and Landscape Design 3210; Philosophy 2510-20; Plant and Soil Science 3250; Political Science 3565-66, 3930, 4930; Public Health 3310; Recreation 2120, 3220; Sociology 3910; Wildlife and Fisheries Science 4450, 4460, 4550; Zoology 3640, 4300.

*Or equivalent honors courses.

Upon completion of the four-year wildlife and fisheries science curriculum, the degree of Bachelor of Science in Wildlife and Fisheries Science is awarded.

Minor in Wildlife and Fisheries Science consists of 24 hours as follows: 3230, any three of three courses (4450, 4460, 4510, 4520, 4530, or 4540, 12 additional hours taken from a list of approved courses maintained in the Department of Forestry, Wildlife and Fisheries. Prerequisites will not be waived.

Freshman Hours Credit

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1010 or 1011; 1020; 1031 or 1032 or 1033 or 1034 *</td>
<td>9</td>
</tr>
<tr>
<td>Botany 1110-20</td>
<td>3</td>
</tr>
<tr>
<td>Forestry 1620, 3000</td>
<td>4</td>
</tr>
<tr>
<td><em>Mathematics 1840 or 1841; 1850; 1860</em></td>
<td>12</td>
</tr>
<tr>
<td>Physics 1210-20</td>
<td>4</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
</tr>
<tr>
<td><em>Communications elective</em></td>
<td>3</td>
</tr>
<tr>
<td><em>Sophomore</em></td>
<td></td>
</tr>
<tr>
<td>Chemistry 1510-20-30</td>
<td>12</td>
</tr>
<tr>
<td>Economics 2510</td>
<td>8</td>
</tr>
<tr>
<td><em>Biological Science 3210</em></td>
<td>8</td>
</tr>
<tr>
<td>Forestry 3040</td>
<td>4</td>
</tr>
<tr>
<td>Plant and Soil Science 2130 or 3610</td>
<td>4</td>
</tr>
<tr>
<td>Animal Science 3210</td>
<td>4</td>
</tr>
<tr>
<td><em>Computer Science 1510</em></td>
<td>4</td>
</tr>
<tr>
<td>*Wildlife and Fisheries Science 3000</td>
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<tr>
<td>Wildlife and Fisheries Science 2100</td>
<td>2</td>
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<tr>
<td><em>Electives</em></td>
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</table>

Total: 202 hours

Human needs go beyond food, clothing, and shelter. We require a degree of control over the 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 and business of producing flowering plants for field and greenhouse, and the art and science of using these plants for the benefit of humans. Opportunities are available as greenhouse managers, florists, and some top sales representatives.

Nursery management deals with the growing and care of ornamental plants for sale. Skills necessary to be a nursery manager include horticultural knowledge and a business sense. Students in this area are prepared to work in nurseries, garden centers, botanical gardens, and arboretums. They may find opportunities in research, teaching, writing, sales, and landscape maintenance and installation.

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 or garden business, or sales of equipment and services.
Plant and Soil Science

Advisors: Professors Coffey, Parks, Reynolds, Seatz; Associate Professors Allen, Lessman, and Reich.

Plant and soil science deals with field and vegetable crops and soils. Plant science includes crop breeding and genetics for crop improvement and the introduction of new varieties, crop management for high quality products, and weed control for efficient crop production.

Soil science includes studies in soil formation and classification for better understanding of soil resources; soil management for optimum crop production and conservation; soil fertility for utilizing fertilizers efficiently; and basic studies in chemistry, physics, and biology as they apply to the soil and to a better understanding of its properties and proper use.

The plant and soil scientist must have a knowledge of the basic physical and biological sciences and, in addition, be trained in communication skills. The scientist may be broadly trained or may specialize in a more specific phase of the subject. Regardless of interest, many good jobs are available for the well-trained plant and soil scientist.

Employment opportunities differ depending upon the individual's type of training and interest. For the person who is scientifically inclined, positions are available in research with both public and private agencies. For those who wish to apply their knowledge to the solution of practical problems, positions are available with the Agricultural Extension Service as extension agents or as specialists, with the Soil Conservation Service, Forest Service, Farmers Home Administration, Production Credit Association, and other public agencies. Many plant and soil scientists are employed in private industry as technical specialists, supervisors, and salespersons. Banks and other financial institutions employ plant and soil scientists as appraisers and farm managers. Others may farm on their own, manage farms for others, or work for foreign governments. Certainly, plant and soil science is basic to all agriculture, and people trained in this important field will find many opportunities to serve in modern agriculture.

A minor in Plant and Soil Science consists of 24 credit hours including 2130, 4410, and at least 16 elective hours to be taken by electing two (2) courses from Group A and two (2) courses from Group B. 3010 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, 1140
- Botany 3110, 3210
- Agriculture 1110 or 2120 or 1130 or 3120 or 3130 or 3140 or 3150 or 3160 or 3170 or 3180 or 3190 or 3200 or 3210 or 3220 or 3410
- Mathematics 1840-50-60 or 1840-50-60

**Sophomore**
- Chemistry 3110 or 3210 or 3510
- Mathematics 1540-50-60 or 1540-50-60
- Physics 1210 or 2210 or 3210 or 3219 or 3220 or 3230 or 3239 or 3240 or 3250 or 3259 or 3260

**Junior**
- Plant and Soil Science electives
- Agriculture 2120
- Orn. Hort. and Landscape Design 2230, 3610, 3810
- Entomology and Plant Pathology 3130 or 3210
- Agriculture 1110 or 2120 or 1150 or 2130 or 2140 or 2141 or 2149

**Senior**
- Plant and Soil Science 3610, 4910
- Animal Science 3310 or 3320
- Plant and Soil Science electives
- Non-departmental electives
- Electives

Total: 198 hours

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 professor in charge. 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, Research, 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 is 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 (4) 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. F, W.

1130 Animal Science for Agriculture (4) Animals in agriculture: Body systems and development, principles of feeding, and environment of farm animals. Animal sanitation, animal products, and the relationship to public health. 3 hrs. and 2 labs. F, W.

1140 Plant Science for Agriculture (4) Plant structure, physiology, heredity, and environment in relation to growth, adaptation, and management of crops. 2 hrs. and 2 labs. S.

1150 Food Technology and Science in Agriculture (4) Utilization, processing, and distribution of food products. 3 hrs. and 1 lab. W, S.

2120 Introduction to Agricultural Engineering (4) Agricultural power and machinery fundamentals, agricultural structures, soil and water conservation controls, and agricultural uses of electricity. Prereq: Math 1550 or equivalent. 3 hrs. and 1 lab. F.

3000 Microcomputer Applications in Agriculture (3) Introduction of microcomputer technology as related to agricultural applications; microcomputer terminology and architecture; number system; input/output devices; operating systems and languages; applications software; communication with peripherals and other systems. Prereq: A basic course in computer programming. 2 hrs. and 1 lab.

4018 Honors: Seminar (3) Selected topics. Offered alternate years. Open to juniors and seniors by invitation. F.

GRADUATE Consult the Graduate Catalog for listing of graduate level courses.

Departmental Programs

Agricultural Economics and Rural Sociology

Professors:

J. A. Martin (Head), Ph.D. Minnesota; M. B. Badenhop, Ph.D. Purdue; J. R. Broker, Ph.D. Florida; C. L. Cleland, Ph.D. Wisconsin; Irving Dubov, Ph.D. California (Berkeley); L. H. Keller, Ph.D. Kentucky; T. H. Kinnitt, Ph.D. Kentucky; F. O. Leutoldt, Ph.D. Wisconsin; D. L. McLeans, Ph.D. Clemson; B. R. McManus, Ph.D. Purdue; S. D. Mundy, Ph.D. Tennessee; B. H. Penesoot, 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 Professor:

D. M. Markley, Ph.D. VPI & S.U.

Agricultural Economics (047)

2410 Economics of Food and Rural Resources (3) 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. F, S.

3120 Agricultural Prices (3) Factors affecting prices in agricultural production/processing/distribution; prices in an enterprise economy; competitive, monopoly, and oligopoly pricing; space, form and time price differences; tools to measure price; farm price programs. Prereq: Agriculture 1110 and Economics 2520 or consent of instructor. W.

3320 Marketing Farm Products (3) Survey of the U.S. food and fiber marketing systems; marketing options of farmers and agricultural businesses; industry structure in marketing channels for agricultural products; basic tools to analyze marketing problems. Prereq: Agric. 1110 and Econ. 2520 or consent of instructor. F.


4340 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. W.

4440 Farm Income Tax Management (3) Legal and economic concepts in taxation of agriculture, and managing a 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. W.

5110 Commodity Futures Markets (3) Futures market analysis and trading of primary industry products; process of passing to others the risk of adverse price change; price analysis from two viewpoints: supply and demand and history (fundamentalist and chartist). Prereq: Junior standing. 3 hrs. F, S.

4120 Farm Management (3) Principles of farm organization and operation; the nature of managerial processes; economic aspects of crop, livestock, labor and machinery planning; use of budgeting techniques for planning field trips arranged. Prereq: Agriculture 1110 and Economics 2510. F, S.

4140 Agricultural Production Economics I (3) Application of microeconomic concepts required for market analysis, product selection, scale of operation of agricultural firms; economic interpretation of technical agricultural production relationships. Prereq: Agriculture 1110 and Economics 2510. W.

4210 Problems in Agricultural Economics (1-3) Directed individual or team research and report writing. Off-campus intern experience and reporting. Special courses in specific topics. Student must arrange with instructor prior to registering. Graduate credit for non-majors only. May be repeated up to 9 credit hours. E.

4240 World Agriculture and Trade (3) Economic bases of world agricultural production and trade; resource location, land tenure systems, international trade, and commercial policy. Prereq: Agriculture 1110 and Economics 2520, or consent of instructor. F.

4250 Agricultural and Rural Planning (3) Decision-making concepts applied to design and implementation of social action programs from the U.S. and other countries. Prereq: Agriculture 1110 and Economics 2510, or consent of instructor.

4310 Agricultural Finance (3) Nature and source of capital; credit problems of farmers; kinds and sources of farm credit. Agricultural insurance and taxation. Prereq: Agriculture 1110 and Economics 2510. W.

4320 Agricultural Policy (3) Meaning of agricultural policy in democratic society; relationship of farm groups to public policy; problems giving rise to policy; types of agricultural policy and appraisal of results; current policy problems. Prereq: Agriculture 1110 and Economics 2520. W.

4330 Land Economics (3) Problems and policies of land use, conservation, development, taxation, and tenure; population growth and demand for land; principles of land use, value, and income. Prereq: Agriculture 1110 and Economics 2510. S.

4610 Management of Farm Supply and Marketing Firms (3) Operations of firms selling farm supplies and marketing agricultural products. Emphasis on accounting data and the economic theories for decision making. Prereq: Agriculture 1110 and Economics 2510. F.

4630 Advanced Agricultural Marketing (3) Economics of market location and pricing; perfect market model; spatial equilibrium analysis; measurement of location and transfer costs; pricing and storage costs; maximizing returns; institutions and market flows; measuring efficiency. Prereq: 3120 or 3320 or consent of instructor. W.

GRADUATE Consult the Graduate Catalog for listing of graduate level courses.

Rural Sociology (880)

3420 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. F, W.

4450 Diffusion of Agricultural Technology (3) Analysis of diffusion process whereby new technology spreads from scientists to final adopters. Topics discussed include adoption process, communication behavior, mass media, role of opinion leaders, exchange agents, opinion leadership, and two-step flow hypothesis. Prereq: Rural Sociology 3420, or consent of instructor. S.

GRADUATE Consult the Graduate Catalog for listing of graduate level courses.
Agricultural Engineering

Professors: H. Luttrel (Head), Ph.D. Iowa State; B. L. Bledsoe, Ph.D. Oklahoma State; P. E. Z. A. Henry, Ph.D. North Carolina State; J. J. McDow, Ph.D. Michigan State P. E.; J. J. Sewell (Assistant Dean, Ag Experiment Station), Ph.D. North Carolina State; P. E.; C. H. Shelton, M. S., Virginia Polytechnic; F. D. Thomas, M. S., Tennessee; L. R. Wilhem, Ph. D. Tennessee, P. E.

Associate Professors: C. Roland Mote, Ohio State, P. E.; Robert Von Bur- nuth, Ph.D. Nebraska.

Assistant Professor: D. O. Baxter, M. S. Missouri.

Instructors: W. E. Hart, M.S. Tennessee; J. B. Wilkerson, M.S. Tennessee.

Agricultural Engineering (066)

1130 Introductory Agricultural Engineering (3) Basic engineering principles, field of agricultural engineer- ing, and career opportunities. Prereq: Open only to freshman and sophomore students in agricultural engineering. F.

3100 Seminar (1) Presentations, discussions, reports on research techniques. Prereq: Consent of department head. F.

3610 Soil and Water Conservation Engineering (4) Integration of hydrologic, agronomic, and engineering principles in solving agricultural water management problems. Emphasis on soil and water conservation, drainage, irrigation, and water quality. Coreq: Prakt and Soil Science, 2130; Engr. Sci. and Mech. 3110. 3 hrs. and 1 lab. Graduate credit for non-majors only. F.

3620 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. W.

3630 Processing and Material Handling Systems (4) Application of basic engineering sciences to processing and handling of agricultural products; physical properties; thermal processing, curing, and drying. Prereq: Engr. Sci. and Mech. 3110. Coreq: Mech. Engr. 3540. 3 hrs. and 1 lab. Graduate credit for non-majors only. S.

3640 Power Units and Machinery (4) Components, characteristics, and operating principles of industrial combustion engines and tractor systems; functional analyses and capabilities of agricultural machines; machinery system performance and cost analyses. Prereq: Engr. Sci. and Mech. 3700. Mech. Engr. 3311. 3 hrs. and 1 lab. Graduate credit for non-majors only. F.

4120-30 Seminar (1,1) Presentations, discussions, reports. 4120—Professional development topics. 4130—Industry trip. Prereq: Consent of department head. W, S.

4220 Special Problems in Agricultural Engineering (3) Selection, analysis, solution, and report of research problem. May be repeated for maximum of nine credit hrs. Prereq: 3100 and permission of instructor. 3 hrs. and 1 lab. E.

4230 Selected Topics in Agricultural Engineering (3) Develop new topics as required by current trends and problems in agricultural engineering. A.

4610 Design of Water Control and Waste Utilization Systems (3) Design and selection of control and waste utilization systems including earth dam, irrigation, drainage, land grading, hydraulic transport of wastes, and application of wastes on agricultural land. Prereq: 3610 or consent of instructor. 1 hr. and 2 labs. W.

4820 Design of Structures for Production, Processing, and Storage of Agricultural Products (3) Basic principles and structural design of agricultural buildings, emphat- is placed on complete design of structure or system; design to include functional and environmental aspects. Prereq: 3520. 1 hr. and 2 labs. S.

4830 Design of Processing and Materials Handling Systems (3) Development of systems and components for integrated agricultural processing considering mass and energy balances, product characteristics, equipment specifications, storage, handling, and eco- nomic merit. Prereq: 3630. 1 hr. and 2 labs. F.

4840 Design of Agricultural Machinery (3) Functional requirements of agricultural machinery. Elements of machine component design; synthesis of mechan- isms, mechanical and hydraulic drives. Team effort in completing machine design project. Prereq: 3640 or consent of instructor. 1 hr. and 2 labs. F.

GRADUATE Consult the Graduate Catalog for listing of graduate level courses.

Agricultural Mechanization (080)

2110 Agricultural Drawing and Mapping (3) Funda- mentals of graphics and mapping, with emphasis on applications to agriculture and forestry. 1 hr. and 2 labs. F, W, S.

2130 Agricultural Surveying (3) Measurement of hor- izontal distances and angles; differential and profile leveling; topographic surveying and mapping; area computation in acres. Prereq: Math 1560 or consent of instructor. 1 hr. and 2 labs. F.

3100 Seminar (1) Presentations, discussions, reports on research techniques. Prereq: Consent of depart- ment head. F.

3110 Agricultural Mechanics (3) Organizing, equipping, and managing school and farm shops; techniques, materials, and procedures in design and construc- tion of shop projects; metal work and welding. 1 hr. and 2 labs. W.

3120 Forest Surveying (3) Principles, methods and instrument manipulation in forest management. 1 hr. and 2 labs. S.

3140 Forest Surveying and Mapping (3) Use of low-precision methods of instruments including pacing, Abney level, topographic tape; field 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.

3210 Soil and Water Conservation Facilities (3) Lev- eling, topographic surveying; planning, construction, and maintenance of drainage, irrigation, and erosion- control systems. Prereq: Math 1560. 2 hrs. and 1 lab. S.

3220 Agricultural Structures (3) Functional planning of structures; environmental control, construction meth- ods, properties of building materials, and cost estimation. Prereq: Math 1560. 2 hrs. and 1 lab. S.

3510 Food Engineering Technology (4) Application of basic engineering principles of food processing. Fluid flow, heat transfer, refrigeration, drying evapo- ration, and materials handling. Prereq: Physics 1120 or Physics 1220. 3 hrs. and 1 lab. S.

3560 Electrical Systems in Agriculture (3) Electrical terms and fundamentals, distribution, wiring prac- tices, governing codes, controls, and motors used in agricultural and residential facilities. Prereq: Physics 1220 or Agriculture 1120. 1 hr. and 1 lab. W.

4120-30 Seminar (1,1) Presentations, discussions, reports. 4120—Professional development topics. 4130—Industry trip. Prereq: Consent of department head. W, S.

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

4180 Equipment and Techniques for Application of Agricultural Chemicals (3) Equipment for application of liquid, solid, and gaseous chemicals. Selection of compo- nents; operational characteristics; safety considerations; calibration; selection and manage- ment of equipment and disposal methods. 2 hrs. and 1 lab. S.

4210 Agricultural Machinery and Tractors (4) Agri- cultural machinery and power units: adaptation to agricultural practices; field efficiencies, capacities, adjust- ment; and servicing. Prereq: Math 1550. 3 hrs. and 1 lab. W.

4220 Special Problems in Agricultural Mechaniza- tion (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: 2130 or 2140. 3 hrs. and 1 lab. E.

GRADUATE Consult the Graduate Catalog for listing of graduate level courses.

Agricultural Extension Education (075)

Professors: R. S. Dotson (Head), Ph.D. Pennsylvania State; L. H. Dickson, Ed.D. Cornell; C. E. Carter, Jr., Ph.D. Ohio State.

3110 Introduction to Agricultural Extension (3) History, philosophy, organization, teaching methods, relationships with other educational agencies. S, F.

4110-20 Field Studies (3,3) Supervised work experi- ence with county extension agents in a designated county. For senior and graduate students. Prereq: 2130 and consent of instructor. Requires living off campus for a specified time. SU.

GRADUATE Consult the Graduate Catalog for listing of graduate level courses.

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. Bletner (Emeritus), Ph.D. Ohio State; C. C. Chamberlain (Emeritus), Ph.D. Iowa State; B. H. Erickson, Ph.D. Kansas State; O. G. Hall, Dean, College of Agriculture) Ph.D. Iowa State; S. L. Hansard (Emeritus), Ph.D. Florida; E. R. Lidwall, M.S. Tennessee; T. P. McDonald, Ph.D. Tennes- see; J. D. McLaren, Ph.D. Auburn; K. Miller, Ph.D. Georgia; J. M. Montgomery, Ph.D. Wiscon- sin; G. M. Merriman (Emeritus), D.V.M. Michigan State; H. V. Shirley, Ph.D. Illinois; R. R. Shrode, Ph.D. Iowa State; R. L. Tugwell (Emeritus), Ph.D. Kansas State.


Assistant Professors: B. R. Bell, Ph.D. N.C. State; J. A. Corrick, Jr. (Emeritus), Ph.D. Tennessee; W. C. Cullen, Ph.D. Minnesota; J. D. Godkin, Ph.D. Massachusetts; R. N. Heitmann, Ph.D. Maine; S. P. Oliver, Ph.D. Ohio State; W. J. Scholl, (Emeritus), Ph.D. Tennessee; J. D. Small- ing, Ph.D. Texas A & M.

Instructor: G. C. McCue, B.S. Tennessee.

2610 Fundamentals of Food Animal Biology (4)
Criteria food animal evaluation; market classes and grades of cattle, poultry and poultry products, lamb and wool, and swine; subjective and objective techniques for evaluation of beef cattle, dairy cattle, poultry, sheep, and swine. Prereq: Admission to sophomore and junior core courses or consent of instructor. 2 hrs. and 1 lab.

2710 Introduction to Biometrical Aspects of Animal Science (3) Biometrical concepts for optimum comprehension of material presented in upper-division animal sciences. Basic ideas in probability as introduction to concept of distributions. Expected values of variables as most probable values. Binomial and normal distributions and their prevalence in biological material. Planning effective experiments. Association or relationship of variables. Assesment 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, castrating, docking, food care, shearing, age determination, identification, preparing for show and sale, vaccinating and immunizing, controlling parasites. Facilities needed in livestock management, space requirements, and restraining devices. 2-3 hrs.

2820 Introduction to Light Horses (3) Scope and role of light horse industry; breeds—development, function, and use; equestrianism; 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 muscular systems; blood and microcirculation, and nervous cardiovascular, respiratory, digestive, renal, and endocrine systems; dermatology. Prereq: 4210 or Biology 1120 or Agriculture 1130. 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 initiation of lactation; endocrine regulation of reproductive phenomena. Prereq: Biology 1210 or Agriculture 1130. 3 hrs. and 1 lab.

3310 Introduction to Animal Nutrition and Feeding (3) Nutritional utilization, function, and requirements of farm animals; animal feeds, nutrient content, and factors affecting feeding values; balancing rations for beef and dairy cattle, swine, and poultry. Not available to students with credit in 3320. Prereq: Agriculture 1130, Chemistry 1130 or 1530. 2 hrs. and 1 lab.

3320 Animal Nutrition (3) Properties, functions, utilization, and requirements of essential and nonessential nutrients; nutritive value determinations and their use. Prereq: Agriculture 1130 and one quarter of organic chemistry.

3330 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: 3320. 2 hrs. and 2 labs.

3410 Herdity in Animals (3) Basic chromosomal mechanism of heredity with emphasis on Mendelian principles and exceptions such as linkage and cytoplasmic inheritance. Introduction to biochromosomal 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; dominance, interaction of genotypes and phenotypes; basis of variation. Partitioning of variation according to various kinds of causative differences such as different environmental and heritability effects. Individual and group selection and consequences. Mating systems and effects on populations. Planning breeding programs. Prereq: 3410 and 1 hr. or consent of instructor. 2 hrs. and 1 lab.

3430 Breeds of Farm Animals (3) Study of evolution and formation of breeds of cattle, horses, poultry, sheep, and swine. Breeding structure. History, development, classification, and improvement programs of various breeds. Prospects for purebred and crossbreeding programs. 2 hrs. and 1 lab.

3510 Animal Hygiene and Sanitation (4) Parasitological, and bacterial organisms in farm animals; immunization; control and protection against disease; veterinary sanitary services and quarantine; animal health and production programs. Prereq: Microbiology 2110-11 or 2190-19 or consent of instructor. 3 hrs. and 1 lab.

3520 Avian Diseases (3) Major diseases: characteristics, prevention and treatment, management practices and diseases of poultry. Prereq: Microbiology 2110-11 or 2190-19 or consent of instructor. 3 hrs. and 1 lab.


3620 Dairy Cattle Judging and Classification (3) Comparative judging, oral rules; type classification programs. Economic value of classification programs. 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 in scientific investigations; specific species' requirements: facility and care for the 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 dealing with subjects applicable to field of animal science; approved supervised work experiences in state-federal laboratories or in private industry. May be repeated for a maximum of 6 credit hrs. Prereq: Senior standing and consent of instructor and department head.

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 physiology in practice; insemination; evaluation, processing, and preserving semen; insemination of females; pregnancy determination; gestation and parturition. Male and female infertility. Prereq: Consent of instructor. 3 hrs. and 1 lab.

4330 Feeding Applications for Farm Animals (3) Detailed application of feeding principles designed to allow students to discover and explore feeding options available to maximize growth, health, and production responses and economic returns. Prereq: 3320 and permission of instructor.

4340 Experimental Animal Nutrition Laboratory (2) Laboratory feeding trials to demonstrate the basic nutrition concepts including the preparation and feeding of experimental diets. Prereq: 3320. 2 labs.

4610 Advanced Beef Cattle, Dairy Cattle, Horse Poultry, Sheep, and Swine Judging (2) Specialization in judging and evaluating; principles of judging; oral reasons on classes 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 program. Topics will include structure of industry, enterprise establishment, systems of production, production practices, and herd improvement programs. Prerequisites 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.

4820 Dairy Cattle Production and Management (4) Integration of principles of nutrition, physiology, and breeding into complete dairy cattle management program. Topics will include structure of industry, enterprise establishment, systems of production, production practices, and herd improvement programs. Prerequisites 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 nutrition, physiology, and breeding into complete pork production and management program. Topics will include structure of industry, enterprise establishment, systems of production, production practices, and herd improvement programs. Prerequisites 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 production program. 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 management program. Topics will include structure of industry, enterprise establishment, systems of production, production practices, and herd improvement programs. Prerequisites 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.

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 Consult the Graduate Catalog for listing of graduate level courses.

Entomology and Plant Pathology (3410)

Professors:

Associate Professor:
E. C. Bernard, Ph.D. Georgia.

Assistant Professors:
L. E. Klostermeyer, Ph.D. Nebraska; B. R. Reddick, Ph.D. Clemson.

3060 Introduction to Forest Protection (4) [Same as Forestry 3060.]

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 3139.F 3)

3210 Economic Entomology (4) Structure, life history, habits, and principles of control of important insect pests of farm, garden, orchard, and household. Prereq: 2 therm lab. and consent of instructor.

3220 Apiculture (2) Biology of the honey bee, with
emphasis on beeskeeping equipment and apiary management, particularly in relation to polination of crops and production of honey and beeswax. W.

3250 Veterinary Entomology (4) Identification, biology and control of arthropods that attack major livestock species. Introduction to entomology, methods of insect control, major insect groups and problems associated with specific host production operations. Not available for graduate credit. Prereq: Biology 1220 or equivalent. 3 hrs. and 1 lab. A, S.

4010 Food Technology and Science Seminar (1-3) Current research, oral and written reports. May be repeated for a maximum of 3 credit hrs. Prereq: Junior standing and consent of instructor. F, W, S.

4030 Dairy Products II (4) Principles in the manufacture of butter, cheese, and special dairy products. Prereq: 3020. 3 hrs. and 1 lab. A, S.

4130 Food Chemistry I (3) Minerals, fats, oils, and vitamins in food as affected by processing. 3 hrs. and 1 lab. F.

4140 Food Chemistry II (3) Reactions of proteins, carbohydrates, and natural food colorants in food materials. Protein structure, food enzymology, and the effects of storage and processing on proteins and carbohydrates with emphasis on nutritional value and functionality. Prereq: Nutrition and Food Sciences 3150 or equivalent. 2 hrs. and 1 lab. F.

4200 Food Processing I (4) Prevention of spoilage and deterioration of foods. Methods of preservation. Prereq: Agriculture Mechanization 3510. 3 hrs. and 1 lab. F.

4210 Food Additives (3) Substances used in food manufacturing with emphasis on properties and functions. Prereq: Nutrition and Food Sciences 3150 or equivalent. F.

4310 Food Packaging (3) Characteristics and applications of materials and containers to packaging requirements. Methods of packaging foods. Prereq: 2300. 3 hrs. and 1 lab. S.

4410 Food Crop Products (3) Food products from crops with emphasis on types, manufacturing systems, quality attributes, and utility. A, S.

4420 Bakery Products (3) Baking ingredients and their interactions during production and storage of bakery products. Prereq: 4130 and Chemistry 2230 or equivalents. 2 hrs. and 1 lab. A, S.

4800 Meat Products Manufacturing (3) Prepared meat products with emphasis on sausage making and formulation and description of the various meat products. Prereq: 3810 or consent of instructor. 1 hr. and 2 labs. W.

5020 Meat and Bone Products (3) Review of literature and technology related to meat and bone products. Prereq: 4200 and Food Science 3510 or consent of instructor. 3 hrs. and 1 lab. B.

5600 Advanced Meat Science (3) Qualitative and quantitative characteristics of meat and poultry related to palatability, cookery, preservation, packaging, and merchandising. Prereq: Food Technology and Science 3840. A, F.

Graduate Consult the Graduate Catalog for listing of graduate level courses.

Food Technology and Science (390)

Professors: J. T. Miles (Head), Ph.D. Wisconsin; J. L. Collins, Ph.D. Maryland; H. O. Jaynes, Ph.D. Illinois; S. L. Melton, Ph.D. Tennessee; W. W. Overcast (Emeritus), Ph.D. Iowa State.

Associate Professors: P. M. Davison, Ph.D. Washington State; B. J. Demott, Ph.D. Michigan State; F. A. Draughn, Ph.D. Georgia; H. D. Lovadys, Ph.D. Kansas State; J. R. Mouni, Ph.D. Ohio State; R. J. Riemann, Ph.D. Kansas State.

Instructor: O. G. Sanders, M.S. Tennessee.

2300 Food Laws and Regulations (3) State and federal laws concerning food industry. Organization and operation of regulatory agencies. Food grades and standards. W.

3020 Dairy Products I (4) Procurement, processing, and distribution of fluid milk. Manufacture of frozen and condensed dairy products. 3 hrs. and 1 lab. W.

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. S.

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. F.

3810 Food Microbiology I (4) General methods for the enumeration of microorganisms in food products. Factors which affect the growth of microorganisms in foods and methods for controlling their growth. Prereq: Microbiology 2910-19 or equivalent. 2 hrs. and 1 lab. F.

3840 Meat Science (3) Processing methods, carcass characteristics of meat animals; slaughter, cutting selection, curing, freezing, and cooking. 2 hrs. and 1 lab. W.

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 9 credit hrs. Prereq: Consent of department head. E.
of forest recreation. Forest recreation resources. Development, management, and administration of forest recreation areas; socioeconomics and public relations. Prereq: 4004. W.

4410 Forest Recreation (3) Forest lands as a recreation resource; relationships of forest recreation and other management activities; development and management of forest recreation areas; socioeconomics and political determinants of recreation development and management. Possible overnight field trips required. Prereq: 4006 or consent of instructor. F.

4450 Game Mammals (4) Classification, identification, distribution, natural history, and management principles and practices of forest mammals. Prereq: 3230 or one year of zoology. 2 hrs. and 2 labs. F.

4460 Game Birds (4) Biology, classification, identification, distribution, and management of game birds in North America. Prereq: 3230 or one year of zoology. 3 hrs. and 1 lab plus one weekend field trip. W.

4500 Problems in Wildlife and Fisheries Sciences (1-6) Special research or individual problems in forestry. Prereq: Forestry 3230 or equivalent. 1 hr. to 6 hrs. for individual problems. F.

4510 Fish Populations (4) Principles and methods of fish population estimation; sampling techniques and equipment; population dynamics; age and growth. Prereq: Biology 3130, 8 hrs. mathematics, or consent of instructor. 3 hrs. and 1 lab or field period. W.

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

4770 Field Techniques in Wildlife Management (3) Capturing and handling wildlife, wildlife restocking and control of wildlife damage, and habitat management for wildlife. Prereq: 4450, 4460 or consent of instructor. 1 hr. and 2 labs. F.

GRADUATE Consult the Graduate Catalog for listing of graduate level courses.

Wildlife and Fisheries Science (933)

2100 Introduction to Wildlife and Fisheries Science (3) History and philosophies of wildlife and fisheries management including the value of wildlife in the modern world; roles of research, management, public relations, and law enforcement in the conservation of wildlife and fisheries resources. Prereq: Forestry 1620, 6 hrs. of Botany/Biology.

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 natural resource management. Prereq: completion of 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 Forestry 3900.) W.

3200 Wildlife Resources and Their Conservation (3) Wild animal resources of the United States; their interrelationships with soil, water, forests, and other plant life; contribution to economic and social development; importance and methods of conserving wildlife. General course for nonwildlife and fisheries science majors. W.

3230 Wildlife Management (3) Lives and ecological relationships of wild animals; biological, social, and economic aspects of their management. Available for graduate credit for non-forestry and non-wildlife and fisheries science majors only. F.

3330 Law Enforcement in the Natural Resources (3) Law Enforcement as an integral part of natural resource management; fundamentals and general principles of state and federal laws and regulations governing natural resource management. Prereq: 3230.

4450 Game Mammals (4) Classification, identification, distribution, natural history, and management principles and practices of forest mammals. Prereq: 3230 or one year of zoology. 2 hrs. and 2 labs. F.

4460 Game Birds (4) Biology, classification, identification, distribution, and management of game birds in North America. Prereq: 3230 or one year of zoology. 3 hrs. and 1 lab plus one weekend field trip. W.

4500 Problems in Wildlife and Fisheries Sciences (1-6) Special research or individual problems in wildlife and fisheries science. May be repeated. Maximum 9 credit hrs. E.

4510 Fish Populations (4) Principles and methods of fish population estimation; sampling techniques and equipment; population dynamics; age and growth. Prereq: Biology 3130, 8 hrs. mathematics, or consent of instructor. 3 hrs. and 1 lab or field period. W.

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

4770 Field Techniques in Wildlife Management (3) Capturing and handling wildlife, wildlife restocking and control of wildlife damage, and habitat management for wildlife. Prereq: 4450, 4460 or consent of instructor. 1 hr. and 2 labs. F.

GRADUATE Consult the Graduate Catalog for listing of graduate level courses.
Ornamental Horticulture and Landscape Design (740)

Professors: G. D. Crater (Head), Ph.D. Ohio State; L. M. Callahan, Ph.D. Rutgers; N. D. Peacock (Emeritus), Ph.D. Michigan State; H. van der Werken, GAVST, Horticulture College (Frederiksoord, Holland); B. D. Williams, Ph.D. Pennsylvania State.


Assistant Professor: S. M. Rogers, M.L.A. University of Georgia.

2230 Environmental Horticulture (3) An introduction to awareness of and appreciation for ornamental plants around and in the home. Design and management of home landscapes including selection, buying, effectively using, pruning, and care of lawns, turfgrasses, herbaceous landscape plants and house plants. 3 hrs.

3030 Plant Propagation (3) Physiology, methodology, and environmental requirements for propagation. Prereq: 1020, 110, 2130. 3 hrs. and 1 lab.

3040 Floral Design (3) Principles and techniques in flower arranging and their application to 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 successes, failures, and losses. 2 hrs. and 1 lab.

3210 Turfgrass Management (4) Principles and management practices for grasses used in lawns,高尔夫球场, recreational areas, and highway sides. 3 hrs. and 1 lab.

3390 Advanced Turfgrass Management (4) Principles, management practices, and research on turfgrass species and their production and use in the landscape. 4 hrs. and 1 lab.

3410 Basic Floriculture (3) Principles and practices employed in producing major cut flowers and potted plant crops. Application of principles of plant physiology as they relate to the control of flowering, harvesting schedule, and post-harvest quality. Prereq: 3110, 3210, and Plant and Soil Science 3040 or equivalent. 3 hrs. and 1 lab.

3510 Grounds Maintenance and Management (4) Identification and management of landscape maintenance tasks; growth control, irrigation, soil amendments, transplanting, climate protection, pest control; cultivation, maintenance of equipment; schedules and management practices. Prereq: 2230. 2 hrs. and 2 labs.

3610 Fundamentals of Landscape Design (4) Development of basic graphic skills and techniques of plan delineation. Fundamentals of the process theory of design, site analysis, program development, design synthesis. Introduction to site layout, topographic interpretation, and design and drafting of site plans and landscape structures. Development of awareness and sensitivity to landscape elements. 3 hrs. and 2 labs.

3820 Intermediate Landscape Design (4) Application of skills and knowledge acquired in 3610 to a variety of landscape projects. Refinement of graphic skills. History of landscape design as it relates to contemporary approaches. Pictorial aspects of planning, design and implementation. Use of plant materials in design of small and moderate scale landscape situations. Prereq: 3610, 3810 or equivalent. 1 hr and 2-3 hr. labs.

3630 Landscape Construction and Contracting (4) Application of construction methods, materials and practice concerns with landscape installation and contracting. Site layout procedures, earthwork and drainage, landscape construction materials; application through design detail drawings and small scale projects. Landscape, landscape construction techniques and bidding procedures. Prereq: 3310, 3610; Ag. Mech. 2130 recommended. 1 hr. and 2-3 hr. labs.

3610 Basic Landscape Plants (4) Identification, classification, adaptation, culture, and landscape design uses for ornamental shrubs and plants. 2 hrs. and 1 lab.

3620 Supplementary Landscape Plants (3) Identification, classification, adaptation, culture, and landscape design uses for ornamental trees, shrubs, and vines. Prereq: 3610. 1 hr. and 2 labs.

3530 Interior Plants (3) Identification, classification, adaptation, culture and interior uses for foliage and flowering plants. Prereq: 3610, 3810; 1 hr. and 2 labs.


4160 Nursery Management (3) Modern management methods for wholesale retail nurseries, garden centers, and landscape contractors. Prereq: 3510. 2 hrs. and 1 lab.

4180 Park Design (4) Design criteria for parks and outdoor recreation systems. Park site selection, analysis, planning, and management as related to needs and natural and economic resources. Evaluation of aesthetic and functional quality of parks and their impact on environmental quality of rural and suburban communities. Prereq: 3510, 2 hrs. and 2 labs.

4190 Advanced Landscape Design (4) Comprehensive application of landscape design skills and knowledge through the development of a major project. Analysis, programming, planting design, construction detailing, estimating, specifications, contracts and bidding included in total project package. Prereq: 3510, 3820, 3830, 1 hr. and 2-3 hr. labs.

4220 Advanced Turfgrass Management (4) Principles and management practices for turfgrass species and their production and use in the landscape. 4 hrs. and 1 lab.

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 (1-6) May be repeated to a maximum of 10 credit hrs.

4610 Seminar (1) Current problems in ornamental horticulture and landscape design. Prereq: Junior standing and consent of instructor.

GRADUATE Consult the Graduate Catalog for listing of graduate level courses.

Plant and Soil Science (792)

Professors: W. L. Parks (Acting Head), Ph.D. Purdue; F. F. Bell (Emeritus), Ph.D., Iowa State; L. D. Coffey, Ph.D. Purdue; D. 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. Purdue; D. L. Kinsey, Ph.D. Michigan State; J. H. Reynolds, Ph.D. Wisconsin; L. F. Seatz (Emeritus), Ph.D. North Carolina State; H. S. McCollum (Emeritus), M.S. Kansas State; M. E. Spring (Emeritus), Ph.D. California (Berkely); H. D. Swingler (Emeritus), Ph.D. Louisiana State.


Assistant Professors: J. G. Graveel, Ph.D. Purdue; C. E. Sams, Ph.D. Michigan State.

2130 World Food Production and Crop Systems (3) Introduction to world crop plants and cropping systems with emphasis on origin and development, current technology and practices, and future (role, challenges, demands, functions, problems) of agriculture. 3 hrs.

2130 Soils (4) Nature and properties of soils. Physical, chemical, biological, and geological processes as they relate to soil formation and crop growth. Prereq: Chemistry 1120 or 1520 or 1620. 3 hrs. and 1 lab. F, S.

3110 Soil Fertility and Fertilizers (4) Properties of soils in relationship to plant nutrient availability and uptake. Methods of soil analysis; selection and application of fertilizer; manufacture and properties of fertilizers. Prereq: 2130. 3 hrs. and 1 lab. W.

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

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

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

3170 Vegetable Crops (4) Characteristics, economic importance, adaptability and production of vegeta- ble crops grown in home and professional gardens. Prereq: emphasis on both warm and cool season crops. May be taken for graduate credit by non-majors only. Prereq: 2130; 8 hrs. biological science. 3 hrs. and 1 lab. S.

3180 Fruit Crops Management (4) Soils, planting, cultivation, development of fruit crops plantations; pest control, harvesting, packaging, storage and processing. Prereq: 2130; 8 hrs. biological science. May be taken for graduate credit by non-majors only. W.

3220 Soil Management (4) Soil management for crop production including cropping systems, fertilizer use, and tillage operations for specified soil and farming conditions. Prereq: 2130. 3 hrs. and 1 lab. S.

3250 Soils in Forestry (3) Soil as a medium for tree growth; relation of physical, chemical, and biological properties of soils to tree growth and management of forest stands. Soil properties of importance in road location, recreational development, and watershed management. Prereq: 2130; Forestry 3320. 2 hrs. and 1 lab. W.

3410 Soil and Plant Analysis (3) Applied methods of soil and plant analysis, as they relate to crop nutrition and soil evaluation including sampling procedures, sample preparation, soil physical and chemical analyses, and plan mineral content. Prereq: 3110. 1 hr. and 2 labs. W. Not for graduate credit.

3510 Statistics for Agricultural Research (3) Application of statistics to interpretation of agricultural research. Notation, descriptive statistics, probability, distributions, confidence intervals, students t and
chi-square tests, analysis of variance, mean separation procedures, linear regression and correlation. May be taken for graduate credit by non-majors only. Prereq: Math 1550 or 1850 or equivalent. 3 hrs. and 1 rec. F, W.

3810 Practicum in Plant and Soil Science (3-6) Spend one quarter working with agricultural related enterprises with area of work being related to a student's career interest. Requires consent of 3-person faculty administering committee and of academic advisor. May not be used as a 3000-level prerequisite for any course in Plant and Soil Science. May not be taken for graduate credit. PSS majors only. E.

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. F.

4120 Principles of Crop Breeding (4) Genetic principles and techniques used in crop improvement. Prereq: Biology 3110 or equivalent. W.

4250 Agricultural Pesticides (4) Regulation of pesticide development, manufacture, transportation, marketing and use. Structure, use, mode of action, degradation and environmental impact of pesticides used in agriculture, forestry and related areas. Prereq: 1 year biological sciences and 1 year chemistry. 3 hrs. and 1 lab. F.

4320 Soil Formation, Morphology, and Classification (4) Soil parent materials, basic pedogenic processes, soil forming processes, soil morphology and interpretation of morphology, taxonomic classification of soils. Use of soil surveys. Prereq: 2130. 3 hrs. and 1 lab. S.

4350 Soil Survey (2) Techniques of mapping soils, development of mapping legends and documentation and testing of mapping unit descriptions and interpretations. 1 hr. and 1 lab. Prereq: 4320 or concurrent. S.

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. E.

4410 Crop Physiology and Ecology (4) Application of the principles of plant physiology and ecology to crop production. Effects of environmental factors (light, heat, water, soil, etc.) on physiological processes (respiration, photosynthesis, germination, flowering, etc.) Prereq: Botany 3210; 2130 and any PSS course at 3000-level except 3610. 3 hrs. and 1 lab. W.

4710 Principles of Weed Science (4) Principles of cultural, biological, and chemical control of weeds, effects on environment, principles of herbicide selectivity and activity, types of herbicides and specific recommendations for various crop and non-crop uses. Prereq: Agric. 1140 or 1120; Organic Chem. 2130 and any PSS course at 3000-level except 3610. 3 hrs. and 1 lab. S.

4910 Seminar (1) Review of literature. Oral and written reports. W.

GRADUATE Consult the Graduate Catalog for listing of graduate level courses.
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 architect. 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 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. A reading and reference room is maintained in the Art and Architecture Building.

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. Scholarships 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 The University of Tennessee Journal of Architecture. 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. Exchange programs are established with Royal Melbourne Institute of Architecture, Melbourne, Australia and Chongqing Institute of Architecture and Engineering, Chongqing, Sichuan Province, China.

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.

Memphis and Knoxville Community Design Centers

Each year, throughout the year, advanced students may work at these locations off-
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 progress and design work in second year will be reviewed by a committee of the faculty to determine advancement to third year. 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.

Progression to 4000-level Courses

Architecture students must have attained third-year standing in the school before being admitted to any 4000-level course, with the exception of Architecture 4000 Service Practicum.

Minor

An undergraduate minor in architecture is offered in order to enable students 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/No Credit courses are defined as less than C. The following regulations apply: (1) S/NC courses may not count towards the requirements in their course of study. Students may use the available electives for study and a sound general education. While some courses may 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 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 architect's office is required. Upon petition, work in an engineer's, or contractor's office or related work may be approved by the school. This work must be evidenced by a letter from the employer indicating type and quality of student's work and time of employment prior to the fifth year. (See course description for Architecture 4000.)

Foreign students may need to obtain Immigration and Naturalization Service Employment Authorization before service practicum begins. To obtain authorization, foreign students should take their I-94 form to the Office of International Student Affairs not more than 60 days nor less than 30 days before the anticipated starting dates. Beginning service practicum employment without INS authorization constitutes unauthorized employment and may jeopardize foreign student's continued stay in the United States.

### Credits

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Total: 245 hours

1Students are not allowed to enroll simultaneously in two of these design courses.
Bachelor of Architecture as a Second Degree

A curriculum leading to a Bachelor of Architecture degree is available to students who already hold a bachelor's degree or an advanced degree.

This program begins with intensive initial studies in architecture and is possible to complete within three years. A minimum of 9 quarters residency is required. The degree is the first professional degree recognized for purposes of eventual qualification for the license to practice architecture.

Applicants must provide a transcript of previous academic work and must have attained at least a 2.5 overall grade point average. Appropriate goals and abilities must be shown by the applicant as well.

SECOND DEGREE PROGRAM MINIMUM REQUIREMENTS

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Total: 145 hours

1 Students are not allowed to enroll simultaneously in two of these design courses.

2 To be admitted to the third year the students must have his or her work reviewed by designated committee of faculty of the school. A GPA of 3.0 in Architecture 1100, 1200, 1300, 3100, 3200, 3300 is required along with an overall 2.5 GPA.

Approved Electives List

Approved Electives: First & Second Year Students: English 2560-70, 2640-50, Philosophy 1710, 2510, History 3740; Classics 3340; Foreign Language; Architecture 2500.

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


1100 Introduction to Architecture (3) Examination of scope and definition of architecture. Imaginative, intellectual, and professional background. The field in 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.

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 constructional drawing skill and the student's imaginative capabilities.


1201 Visual Design Principles (2) Basis of visual order: proportion, scale, balance, figure-ground relationships, and rhythm. Studies of two and three dimensional forms. Light, shadow, and color. Creative abstract exercises and sketches to focus on basic architectural principles. Prereq: 1100 and 1101.

1290 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. Prereqs: 1190 and 1291.


1301 Structural Types (2) Basic building structural types and approaches to construction and assembly of buildings. Study of load and reactions; frames, skin, stressed skin, geodetic frames, shells. Introduction to concepts of compression, tension, and bending moment. Properties of basic building materials. Prereqs: 1200 and 1201.


2104 Computer Applications in Architecture (4) Demonstration of computer use in architecture, including exercises in programming.

2200 Elements of Architecture (4) Design of small buildings with special consideration for site, internal circulation patterns, space allocation, and spatial order. Presentation sketches, constructed drawings, and sketch models. Prereqs: 2100 and 2101; coreq: 2200.

2205 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, and public and private areas; zoning. Diagrammatic presentations and sketches from field observations. Prereqs: 2100 and 2101; coreq: 2205.

2207 Architectural History I (3) Development of architecture from antiquity through the Byzantine period, with consideration for cultural conditions and form of settlements.


2300 Order and Form in Building (4) Design of small buildings with special consideration for site, internal circulation patterns, space allocation, and spatial order. Emphasis on exploration of formal possibilities and structural implications in relation to program use. Presentation sketches, constructed drawings, and finished model. Prereqs: 2200 and 2101; coreq: 2301.

2301 Models of Building Form (2) Examples of building illustrating imaginative manipulation of form in response to spatial and structural requirements. Prereqs: 2200 and 2201; coreq: 2300.

2307 Architectural History II (3) Development of western architecture from the medieval period through the Baroque. Prereq: 2207.


3107 Architectural History II (3) Study of the modern movement from its roots in Romanticism, Neo-Classicism, and the Industrial Revolution through the work of modern masters, with applications to current design issues. Prereq: 2307.

3114 Structures in Wood and Steel (4) Introduction to design and analysis of simple steel and wood structures based upon specific loading requirements. Use of construction and design tables - selection of structural members. F.

3116 Environmental Control (4) Human physiological
response to heat, light, and sound in buildings. Study of climatological factors which affect buildings; introduction to heating, ventilating, and air conditioning. Methodologies for design and computer-aided design with emphasis on the analysis and design of simple reinforced concrete and masonry structures based on specific loading conditions. Use of construction codes, handbooks, and design tables. Prereq: 3114. W.

3112 Structures in Masonry and Concrete (4) Introduction to design and construction of simple reinforced concrete and masonry structures based upon specific loading conditions. Use of construction codes, handbooks, and design tables. Prereq: 3114. W.

3116 Mechanical Systems in Architecture (4) Continuation of the study of heating, ventilating, and air conditioning systems, including both passive and active solar energy systems. Plumbing and fire protection systems. Prereq: 3116. W.

3117 Materials and Processes of Construction (4) Architectural materials and their use in building construction. W.

3150 Architectural Design III: Details (6) Design concepts developed in detail, with consideration of material and environmental systems. Full-scale detail studies. Drawings and models showing alternative structural and environmental systems. Full-scale buildings. Prereq: 3100. S.


3157 Structural and Mechanical Applications (4) Analysis and selection of structural and mechanical systems for a specific case study to integrate technical information into a unified design solution. Prereq: 3214 and 3216; coreq: 3300. S.

3191 Research Methods for Designers (3) General introduction to various research methods and techniques available to designer and appropriate for architectural research. Prereq: 3200. E.

3200 Architectural Design II: Concepts (6) Building concepts, forms, and design of simple reinforced concrete and masonry structures based on specific loading conditions. Solution to issues of site and context. Complete sketches, drawings, and models at site and building scales required. Prereq: 3100. W.

3214 Structures in Masonry and Concrete (4) Introduction to design and construction of simple reinforced concrete and masonry structures based upon specific loading conditions. Use of construction codes, handbooks, and design tables. Prereq: 3114. W.

3216 Mechanical Systems in Architecture (4) Continuation of the study of heating, ventilating, and air conditioning systems, including both passive and active solar energy systems. Plumbing and fire protection systems. Prereq: 3116. W.

3217 Materials and Processes of Construction (4) Architectural materials and their use in building construction. W.

3300 Architectural Design III: Details (6) Design concepts developed in detail, with consideration of alternative and adaptive use and neighborhood aspects. Full scale detail studies. Drawings and models showing alternative structural and environmental systems. Full-scale buildings. Prereq: 3100. S.


3317 Structural and Mechanical Applications (4) Analysis and selection of structural and mechanical systems for a specific case study to integrate technical information into a unified design solution. Prereq: 3214 and 3216; coreq: 3300. S.

3191 Research Methods for Designers (3) General introduction to various research methods and techniques available to designer and appropriate for architectural research. Prereq: 3200. E.

3200 Architectural Design II: Concepts (6) Building concepts, forms, and design of simple reinforced concrete and masonry structures based on specific loading conditions. Solution to issues of site and context. Complete sketches, drawings, and models at site and building scales required. Prereq: 3100. W.

3214 Structures in Masonry and Concrete (4) Introduction to design and construction of simple reinforced concrete and masonry structures based upon specific loading conditions. Use of construction codes, handbooks, and design tables. Prereq: 3114. W.

3216 Mechanical Systems in Architecture (4) Continuation of the study of heating, ventilating, and air conditioning systems, including both passive and active solar energy systems. Plumbing and fire protection systems. Prereq: 3116. W.

3217 Materials and Processes of Construction (4) Architectural materials and their use in building construction. W.

3300 Architectural Design III: Details (6) Design concepts developed in detail, with consideration of alternative and adaptive use and neighborhood aspects. Full scale detail studies. Drawings and models showing alternative structural and environmental systems. Full-scale buildings. Prereq: 3100. S.


3317 Structural and Mechanical Applications (4) Analysis and selection of structural and mechanical systems for a specific case study to integrate technical information into a unified design solution. Prereq: 3214 and 3216; coreq: 3300. S.

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3214 Structures in Masonry and Concrete (4) Introduction to design and construction of simple reinforced concrete and masonry structures based upon specific loading conditions. Use of construction codes, handbooks, and design tables. Prereq: 3114. W.

3216 Mechanical Systems in Architecture (4) Continuation of the study of heating, ventilating, and air conditioning systems, including both passive and active solar energy systems. Plumbing and fire protection systems. Prereq: 3116. W.
Research discipline and scientific method considered.

4825 Current Issues in Architecture (3) A review of emerging approaches to design, their underlying principles and background in recent practice. F.

4830 Introduction to Preservation (3) History and theory of architectural preservation and restoration. F.

4831 Preservation Technology (3) Techniques of preservation: dating, methods of analysis, history of materials and technology used in old buildings. W.

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. S.

4833 Preservation Law (3) Legal aspects of contemporary preservation activity.

4840 Project Management (3) Principles, methods, and application of project management to the total building process. Project manager 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 Marketing Architectural Services (3) Marketing of architectural practice by study of cases, theories, public relations procedures, and understanding sales of architectural services, both basic and comprehensive. F.

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 emphasizing 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 structure stiffness and flexibility matrices. Prereq: Consent of instructor. (Same as Civil Engineering 4850 and Engineering Science and Mechanics 4850.) SU.


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. 4863-F; 4864-W; 4865-S.

4870 Architectural Photography (3) Photography as a design, research, and presentation medium. Emphasis on architectural photography using black and white media. F, W, S.

4871 Advanced Architectural Photography (3) Application of special photographic techniques with emphasis on color printing and processing. Prereq: Consent of instructor. F, W, S.


4881-82 Advanced Structural Design I, II (4, 4) Analysis, and design of basic building structures. Structural and constructional aspects of building, including structures in steel, concrete, masonry, and timber to satisfy loading and building code requirements. Prereq: 2114 or equivalent.

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: 4881 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. S.

4892 Architectural Computer Graphics (3) Survey of architectural applications of computer graphics; program planning and implementation. Prereq: 2114. W.


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.

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. In addition, the AACSB has accredited the following accounting programs: B.S., M. Acc., M.B.A.

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 15 of this catalog.

Student Advising Center

The College of Business Administration maintains a Student Advising Center. The center is staffed with full-time academic advisors to assist freshman and sophomore students on an individual basis with their programs. Junior and senior students are assigned to advisors 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 and 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 the TEPD faculty.

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 either consultation or actual operations in business and industry. The TEPD 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, helps in selecting a vocation, creates greater interests 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 reporting of job experiences. Arrangements for credit should be made prior to the quarter of coop work.

All students interested in the program are referred to the Cooperative Education Office, Alumni Hall.

Preparation for Teaching

Students desiring to teach business, economics, or distributive subjects in the secondary schools of Tennessee may follow majors in accounting or marketing and also meet the requirements for certification by the State Department of Education.

Students should consult an advisor in business or distributive education regarding the proper courses.

Master's and doctoral degree programs leading to teaching in junior and senior 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 20 hours of the following required courses: Accounting 2110-20-30, Economics 2510-20, 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 are restricted to 21 credit hours. In unusual circumstances permission to take 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 by selecting from specified courses. Where electives are provided, the courses taken must meet the approval of the advisor. 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 unconditionally graded (S/NC, 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 80.

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.

BUSINESS CORE REQUIREMENTS

The following core courses are required in all business curricula: Accounting 2110-20-30 (2110-20, 3210 for accounting and management majors); Business Administration 4430; Business Law 4110 and 4120; Economics 2510-20; Finance 3510 (Political Science 4370 for public administration majors); 3120-30; Management 3010, 3110 (3111 for management majors); Marketing 3110-20; Business Administration 2750 or Computer Science 1410 (3150 for Management Science Option); and Statistics 2100 and three hours of upper-division statistics elective or as designated by the curriculum (3450-60 for Management Science Option).

ENGLISH REQUIREMENT

The English requirement can be fulfilled by English 1010, 1011, or 1019; 1020, and either 1031, 1032, or 1033, as well as hours selected from 1610, 2540, 2560-70-80, 2660-70-80. Speech 2311 or 2361, unless specifically required by a curriculum, may be used to satisfy four of the elective English hours required. English courses beyond the 100-level may be taken in any order. Students desiring a major degree in English are encouraged to substitute for the 2000-level courses listed above any upper-division courses which the Department of English will allow them to.

NATURAL SCIENCE REQUIREMENT

The natural science requirement can be fulfilled by a section-hour sequence in any of the following fields: astronomy, biology, chemistry, geography 1810-20, geology, or physics.

SOCIAL SCIENCE REQUIREMENT

The social science requirement can be fulfilled by selecting from the following courses: Anthropology 2510-20-30; Geography 1810-20, 2110-20-30; History 1510-20 (1518-28), 1610-20, 1950-60, 2510-20 (2518-28); Honors 1138; Human Services 2690; Philosophy 1510-20, 2310, 2510-20; Political Science 2020, 2510-20 (2518-28); Psychology 2550 (2518), 2530-40; Religious Studies 2510 (2511), 2610; and Sociology 1510-20. Students who have not completed a year of American history in high school must select American History: History 2510-20 or 2518-26 (2518) and 2511 or 2521 as part of the 16 hours of social sciences.

COMPUTER SCIENCE REQUIREMENT

A computer programming course is mandatory. Computer Science 1410 or Business Administration 2750 satisfy this requirement.

Accounting

The curriculum provides students with a general education, a general business education, and a general exposure to the primary areas of accounting. Students completing the curriculum are eligible to begin careers in public accounting, industry, and government.

Students desiring greater depth or wishing to specialize in certain areas of accounting are encouraged to seek admission to the Master of Accountancy program during their junior or senior years. Together, the undergraduate accounting program and the Master of Accountancy constitute a five-year opportunity that fulfills the current educational recommendations of the American Institute of Certified Public Accountants.

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 15 hours of accounting courses numbered 3000 or above and must include Accounting 4110, 4140, 4430, and 4630. 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.

Junior standing is prerequisite to all management courses.

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>III</td>
</tr>
<tr>
<td>English 1010 or 1011; 1020; 1031 or 1032; 1033; 1610 or 2660-70-80</td>
<td>3 3 3</td>
</tr>
<tr>
<td>Mathematics 1540-50-60 or 1840-50-60</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Natural science electives</td>
<td>4 4</td>
</tr>
<tr>
<td>Social science electives</td>
<td>4 4</td>
</tr>
<tr>
<td>Non-business electives</td>
<td>4 6</td>
</tr>
</tbody>
</table>
Sophomore

1. English electives ................................ 4 3
2. Speech 2251 or 2381 .......................... 4
3. Economics 2510-20 .............................. 4 4
4. Accounting 2110-20 ................................ 3 3
5. Statistics 3110-20 ................................ 3 3
6. "Computer science elective" ...................... 3
7. Management Science 2110-20 ..................... 3
8. "Social science elective" .......................... 4
9. Computer Science 3410, 3910 ...................... 4
10. "Non-business elective" .......................... 3
11. Junior

Accounting 3110-20-30 ............................ 3 3 3
12. Accounting 3212-20 ................................ 3 3
13. Accounting 3430 .................................. 3
14. Economics 3110 ................................... 3
15. Finance 3120 ....................................... 3
16. Finance 3510 ....................................... 3
17. Management 3010, 3110 .......................... 3 3
18. Marketing 3110-20 ................................ 3 3
19. Statistics 3220 ...................................... 3
20. Statistics 4415 ...................................... 3
21. "Senior Accounting 4110" ......................... 3
22. Accounting 4430, 4140 ............................ 3 3
23. Accounting 4630 ................................... 3
24. Business Administration 4430 ................. 3
25. Business Law 4110-20 ............................ 3 3
26. Business Law 4330 ................................ 3
27. "Senior electives" ................................. 3 3
28. "Business and/or non-business electives" ....... 3 6 3
1. "Finance electives" ................................. 3 3
1. "Economics electives" .............................. 3
1. "Non-business elective" ............................ 4
1. "Senior Business Law 4110-20" .................... 3 3
1. "Senior Business Administration 4430" ......... 3
1. "Senior Economics electives" ...................... 6 6 3
1. "Senior Business and/or non-business electives" 6 6 6

Total: 187 hours

1. See Requirements for All Curricula.
2. One course of the Social Science electives must be in each of the following areas: Anthropology, Psychology, or Sociology.
3. It is strongly recommended that accounting majors select one of their English electives from English 3480 or 4140.
4. "Accounting 4120 and 4230 are available as technical electives, upon approval of the department head. Other upper-division business or Computer Science courses may be used as technical electives.

Economics

The Department of Economics offers specialized courses for those who desire to serve as economic analysts and specialists in business, education, government, and various international agencies. The curriculum requirements for an economics major in the College of Business Administration are listed below with an additional explanation given on page 82.

Freshman students may also elect to major in economics in the College of Liberal Arts or to become certified to teach economics in the secondary schools through the College of Education. See the College of Education for further details. 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 15 hours of economics courses.

Sophomore

1. English elective .................................. 4 3
2. Accounting 2110-20-30 ............................ 3 3
3. English elective ................................... 4
4. "Computer science elective" ...................... 3

Finance

This major is for students interested in careers in finance. The major allows flexibility for students (aided by their department faculty advisor) to tailor their programs to fit their particular career goals and prepare for one (or more) of the following specialty areas:

INVESTMENT MANAGEMENT - This specialty area leads to career opportunities as a stock broker or investment counselor. In addition, students are prepared for investment analysis and portfolio management positions with commercial banks, investment banks, mutual funds, and insurance companies.

REAL ESTATE - Courses in this area are 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.

CORPORATE FINANCIAL MANAGEMENT - Career opportunities in this area include: corporate financial forecasting, planning, and control; managing the cash, short-term borrowing, and short-term investment positions of the firm; capital project analysis; and long-term financing decisions.

BANKING AND FINANCIAL INSTITUTIONS - Courses in this area prepare students who are planning careers in management of commercial banks and branches, or as trust officers, investment or loan officers, or in savings or industrial banks, the Federal Reserve System, international monetary institutions, or state and federal bank regulatory agencies.

INSURANCE AND RISK MANAGEMENT - This concentration is designed to prepare students for entry into careers in insurance and business or public risk management. Opportunities include marketing, agency or home office administration, and management of those pure risks which threaten the solvency and operational efficiency of a business or the provision of cost efficient services by a governmental body.

FINANCIAL PLANNING AND SERVICES - This curriculum provides fundamental and advanced courses covering subjects which are essential in preparing persons for entry into the fields of financial planning and financial services - including Personal Financial Planning, Estate Planning, Investment, Retirement Planning, and Employee Benefits.

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. Accounting 2110-20-30 (or 3210 for 2130), Economics 2510-20 and Statistics 2100 are prerequisite to all courses offered by the finance department.

<table>
<thead>
<tr>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1010 or 1011; 1020; 1031 or 1032 or 1033</td>
</tr>
<tr>
<td>Mathematics 1540-50-60 or 1540-50-60-70</td>
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<tr>
<td>Natural science electives</td>
</tr>
<tr>
<td>English elective</td>
</tr>
<tr>
<td>Computer science elective</td>
</tr>
</tbody>
</table>

Total: 187 hours

1. See Requirements for All Curricula.
2. Finance electives to be selected from any 4000-level finance courses.

General Business

This major is for those who desire a broad business background without extensive concentration in any single business field. To that end, it includes advanced work beyond the introductory courses in accounting, economics, finance, personnel management, marketing, statistics, and transportation as specified below.

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.

Junior standing is prerequisite to all management courses.

<table>
<thead>
<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>English 1010 or 1011; 1020; 1031 or 1032 or 1033</td>
</tr>
<tr>
<td>Mathematics 1540-50-60 or 1540-50-60-70</td>
</tr>
<tr>
<td>Natural science electives</td>
</tr>
</tbody>
</table>

Total: 187 hours

1. See Requirements for All Curricula.
2. Finance electives to be selected from any 4000-level finance courses.
### 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 business organizations 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 operations management, scheduling and control, work measurement, quality assurance, and supervision.
- Personnel 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.
- Office Systems Management—designed for students who wish to prepare for careers in information systems and management, including the specific fields of office procedures, computer processing, and management of information systems.

### Concentrations

#### Operations Concentration
- Accounting 2110-30
- Business Administration 4430
- Statistics upper-division elective

#### Personnel Concentration
- Accounting 2110-30
- Business Administration 4430
- Statistics upper-division elective

#### General Concentration
- Accounting 2110-30
- Business Administration 4430
- Statistics upper-division elective

### Sample Program

- **Sophomore**
  - Accounting 2110-30
  - Business Administration 4430
  - Statistics upper-division elective

- **Junior**
  - Accounting 2110-30
  - Business Administration 4430
  - Statistics upper-division elective

### 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 at least 15 hours of management courses including 4210, 4520, 4460.

### 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: 3310, 3410, 3510, 4610, 4710.

Economics 2510-20 or the equivalent are prerequisite to all marketing courses. Marketing 3110-20 or the equivalent are prerequisite to all other 3000- and 4000-level marketing courses.

### Public Administration

This major is for students who wish to
prepare for management positions in public service or government relations. It presents a combination of general education together with studies in governmental affairs and business management. It is designed to give initial preparation for such governmental employment as program management, budgeting and personnel management, and to private sector employment with trade associations and large corporations with substantial interaction with government.

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
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<tbody>
<tr>
<td>Freshman</td>
<td></td>
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<tr>
<td>English 1010 or 1011; 1020; 1031 or 1032 or 1033</td>
<td>3 3 3</td>
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<tr>
<td>Mathematics 1540-50-60 or 1840-50-60</td>
<td>4 4 4</td>
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<tr>
<td>Natural science electives</td>
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<tr>
<td>Social science electives</td>
<td>4 4 4</td>
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<tr>
<td>Political Science 2510-20</td>
<td>4 4 -</td>
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<tr>
<td>Business and/or non-business elective</td>
<td>- - 3</td>
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</tbody>
</table>

Freshman - 4 4
Mathematics 1540-50-60 or 1840-50-60
Economics 1510-20-30
1/Computer science elective
2/Social science elective
<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Junior</td>
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<tr>
<td>Economics 3110, 3310</td>
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<tr>
<td>Finance 3120</td>
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<tr>
<td>Accounting 3510</td>
<td>3 3 -</td>
</tr>
<tr>
<td>Management 3010, 3110</td>
<td>3 3 3</td>
</tr>
<tr>
<td>Statistics upper-division elective</td>
<td>3 3 3</td>
</tr>
<tr>
<td>Marketing 3110-20</td>
<td>3 3 3</td>
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<tr>
<td>Political Science 3545</td>
<td>4 4 -</td>
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<td>Political Science 3565-56</td>
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<tr>
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Junior - 4 4
Business Law 4110-20...
Business Administration 4430...
Political Science 4410 | 4 4 4 |
Political Science 4510-20 | 4 4 4 |
Economics 4750 | 3 3 3 |
Business electives | 3 3 3 |
Business and/or non-business electives | - 5 5 |
2/Social science elective | 4 4 4 |

Sophomore - 3 3 3
Accounting 2110-20-30...
Economics 2520...
1/Computer science elective
2/Social science elective
<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>Sophomore</td>
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<tr>
<td>Statistics 2110, 3220, 3310</td>
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<tr>
<td>Junior</td>
<td></td>
</tr>
<tr>
<td>Management 3010, 3110</td>
<td>3 3 3</td>
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<tr>
<td>Marketing 3110-20</td>
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<tr>
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<tr>
<td>Business elective</td>
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<tr>
<td>Non-business electives</td>
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Junior - 4 4
INDUSTRIAL STATISTICS
Statistics Concentration
Statistics 3510, 3610 | 3 3 3 |
Elective | 3 3 3 |

Sophomore - 3 3 3
Accounting 2110-20-30...
Economics 2520...
1/Computer science elective
2/Social science elective
<table>
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<tr>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Sophomore</td>
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<tr>
<td>Statistics Concentration</td>
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<tr>
<td>Statistics 3320, 3545-60</td>
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<tr>
<td>Business and/or non-business elective</td>
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</tbody>
</table>

Sophomore - 3 3 3
Total: 187 hours

Management Science Option

The increasing use of electronic computers and modern management methods by 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 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, management, marketing, statistics, and transportation.

Accounting M.S.O.

The curriculum provides students with a general education, a general business education, and a general exposure to the primary areas of accounting. Students completing the curriculum are eligible to begin careers in public accounting, industry, and government.

Students desiring greater depth or wishing to specialize in certain areas of accounting are encouraged to seek admission to the Master of Accountancy program during their junior or senior years. Together, the undergraduate accounting program and the Master of Accountancy constitute a five-year opportunity that fulfills the current educational recommendations of the American Institute of Certified Public Accountants.

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 15 hours of accounting courses numbered 3000 or above and must include Accounting 4110, 4140, 4430, and 4630. 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.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Business Administration 4430</td>
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</tr>
<tr>
<td>Management 3100, 3110</td>
<td>3</td>
</tr>
<tr>
<td>Business Administration 4310 or 4320</td>
<td>3</td>
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<tr>
<td>Marketing 3110-20 and marketing elective</td>
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<tr>
<td>Statistics 3450, 3460, 3550</td>
<td>3</td>
</tr>
<tr>
<td>Business and/or non-business electives</td>
<td>3</td>
</tr>
<tr>
<td>Junior</td>
<td></td>
</tr>
<tr>
<td>Finance 3120-30</td>
<td>3</td>
</tr>
<tr>
<td>Management 4110</td>
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<tr>
<td>Computer Science 3150</td>
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<td>Non-business elective</td>
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Sophomore:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Accounting 3110-20-30</td>
<td>3</td>
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<tr>
<td>Economics 2120-30</td>
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<tr>
<td>Mathematics 1840-50-60</td>
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<tr>
<td>*English electives</td>
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<td>*Social science electives</td>
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<td>*Business and/or non-business electives</td>
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<tr>
<td>Non-business electives</td>
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<tr>
<td>Junior</td>
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<tr>
<td>Finance 3120-30</td>
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<tr>
<td>Finance 3510</td>
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<tr>
<td>Management 3010, 3110</td>
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<tr>
<td>Business Administration 4310 or 4320</td>
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<tr>
<td>Marketing 3110-20 and marketing elective</td>
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<td>Statistics 3450, 3460, 3550</td>
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<tr>
<td>Business and/or non-business electives</td>
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<td>Senior</td>
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<tr>
<td>Accounting electives</td>
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<td>Business Administration 4430</td>
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<tr>
<td>Economics electives</td>
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<tr>
<td>Finance, insurance and real estate electives</td>
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<td>Management 4610-20</td>
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<td>Business and/or non-business elective</td>
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</tbody>
</table>

Total: 187 hours

1 See Requirements for All Curricula.

General Business M.S.O.

Transfer Students: An option in General Business 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 12 hours of accounting, economics, and finance courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Business Administration 4430</td>
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<tr>
<td>Business Administration 4310 or 4320</td>
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<tr>
<td>Marketing 3110-20 and marketing elective</td>
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<tr>
<td>Statistics 3450, 3460, 3550</td>
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<tr>
<td>Business and/or non-business electives</td>
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<tr>
<td>Senior</td>
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<tr>
<td>Business Administration 4410</td>
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<tr>
<td>Management 3100, 3110</td>
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<td>Economics 3420</td>
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<td>OPERATIONS AND PERSONNEL CONCENTRATIONS</td>
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<td>Industrial Engineering 3600</td>
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<td>GENERAL MANAGEMENT CONCENTRATION</td>
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<td>Senior</td>
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<td>Business Law 4110-20</td>
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<tr>
<td>Business Administration 4430</td>
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<td>Management 4210, 4320, 4460</td>
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<td>Management 4410, 4420, 4470</td>
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<td>PERSONNEL CONCENTRATION</td>
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<td>2. Concentration elective</td>
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<td>GENERAL MANAGEMENT CONCENTRATION</td>
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<tr>
<td>2. Concentration elective</td>
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</table>

Total: 187 hours

1 See Requirements for All Curricula.

Graduate Studies

The College of Business Administration offers advanced programs in economics leading to the Master of Arts, and the Doctor of Philosophy degrees. The Master of Business Administration degree program offers concentrations 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 M.S. degree in statistics is also available. 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. 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.
Departments of Instruction

Accounting and Business Law

Professors:

Associate Professors:

Assistant Professors:

Distinguished Lecturer:
S. B. Wolfe, B.S. Virginia Polytechnic.

Accounting (009)

2110-20 Fundamentals of Accounting (3,3) Introduc- tory courses in financial 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 inventory costing procedures. Prereq: 2110-20.

3110-30 Intermediate Financial Accounting (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: 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 Managerial Cost Accounting (3, 3) In-depth analysis of cost for products, projects, and management decisions, with emphasis on cost behavior, cost prediction, budgeting, and responsibility accounting. Accounting 2120 and Statistics 2110 are prerequisites for 3210. Accounting 3210 is prerequisite for 3220. Credit not given for both 3210 and 3220.


5510 Not-for-Profit Accounting (3) Theory and prac- tice of accounting for not-for-profit organizations. Prereq: Accounting 2120 and Statistics 2110 or their equivalents.

4110 Principles of Auditing (3) Role of auditing in society, professional auditing standards, auditor's legal responsibility, internal control, use of statistical sam- pling, audit evidence, and reporting. Prereq: 3130 with a grade of C or better; 4630. Prereq. or coreq. Stat. 4415.

4120 Advanced Auditing (3) Case-oriented course including audit of specific assets, liability, revenue, and expense accounts. May be repeated with permission for reporting, data processing, statistical sampling, and internal auditing. Prereq: 4110 with a grade of C or better and consent of Department.

4140 Advanced Financial and Fund Accounting (3) Analysis of interest and alternatives in advanced prob- lems areas including business combinations, consolidated financial statements and accounting for tax-exempt entities. Prereq: 3130 with a grade of C or better.

4230 Advanced Managerial Accounting (3) Use of accounting data in planning models, incorporating uncertainty into budgets and performance reports, performance measurement of decentralized opera- tions. Prereq: 3220 with a grade of C or better. Mgmt. Science 2120 or equivalent and consent of department.

4430 Advanced Federal Taxes (3) Fundamental prob- lems of federal taxation with emphasis on alternatives available for reporting taxable income. Prereq: 3130 and 4340 with a grade of C or better in both courses.


GRADUATE
See page 81 for information on graduate programs. Consult the Graduate Catalog for listing of graduate level courses.

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 Regula- tion (3) General principles of law as these pertain to business and partnerships and corporations, effect of taxation, and treat agencies regulating business. Prereq. 4110.

4130 Administrative Regulation of Business (3) Ana- lyzes nature and extent to 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 requirement for licensing or certification in fields of public account- ing, certified public accounting, chartered property and casualty underwriters, chartered life underwrit- ers, and certified professional secretaries.

Graduate Students: See p. 81 for information on graduate programs. Consult the Graduate Catalog for listing of graduate level courses.

Economics (283)

Professors:
W. E. Cole (Head), Ph.D. Texas; R. A. Bohm, Ph.D. Washington (St. Louis); R. L. Bowley, Ph.D. Texas; S. L. Carroll, Ph.D. Harvard; H. S. Chang, Ph.D. Vanderbilt; G. R. Feiwel1, Ph.D. McGill; C. B. Garrett, Ph.D. Kentucky; K. E. Anderson, Ph.D. Maryland; 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 (As- sociate Dean), Ph.D. Cornell; W. C. Neale, Ph.D. London School of Economics; K. E. Quaindy (Emer- itus), Ph.D. Kentucky; G. A. Spiwa, Jr., Ph.D. Texas.

Associate Professors:
D. P. Clark, Ph.D. Michigan State; W. F. Fox, Ph.D. Ohio State; E. Glustoff, Ph.D. Stanford; D. L. Kaserman, Ph.D. Florida; K. E. Phillips, Ph.D. Washington (Seattle); A. M. Schottmann, Ph.D. Washington (St. Louis).

Assistant Professors:
S. F. Dudonis, Ph.D. Ohio State; R. A. Holfer, Ph.D. North Carolina (Chapel Hill); J. W. Mayo, Ph.D. Washington (St. Louis); K. J. Murphy, Ph.D. Michigan State; H. L. Thompson, Ph.D. Houston.

*Alumni Distinguished Service Professor.

Requirements for a major in economics consist of: (1) Economics 2510 and 2520 or equivalent honors courses; and (2) a minimum of 33 additional hours in upper-division economics courses. Economics 3110 and 3120 are required as a part of the upper-division work and should be taken as early in the upper-division program as possible.

2001 Survey of Economic Ideas (3) Ideas of major economists including Adam Smith, Karl Marx and J. M. Keynes; evolution of capitalism; discussion of some current economic problems. Emphasis on non-tech- nical treatment. May not be substituted for Economics 2510 or 2520.

2118-28-38 Honors: Introductory Economics (3, 3, 3) Honors course designed for students of superior ability and interest. Same accounts, with emphasis on reporting, data processing, statistical sampling, and internal auditing. Prereq: 4110 with a grade of C or better. Mgmt. Science 2120 or equivalent and consent of department.

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: 2510.

3120 Intermediate Macro Theory (3) Aggregate demand, output, and level of employment; price level, inflation, and deflation; economic growth. Prereq: 2520.

3210 International Economics (3) Balance of payments, exchange rates, and the adjustment process. Prereq: 2520.


3220 Principles of Economic Development (3) Theory of economic development with application to prob- lem areas on local, regional, national, and international
levels; technological, locational, and financial aspects of economic growth. Prereq: 2520.

3230 Regional Economics (3) Overview of regional differences; theory of industrial, agricultural, and residential development; the economic basis for land use patterns and central places; regional structure, growth and methods of analysis; national assistance for regional development. Prereq: 2520.

3240 Economic History of the United States (3) Historical development of agriculture, industry, communications, transportation, banking, and trade, and changes in governmental economic policy. Prereq: 2520.

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 growing importance of commerce in the 19th century; two world wars and their economic consequences. Prereq: 2520.

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: 2520.

3340 Government and Business I (3) Microeconomic objectives and alternative public policies for their achievement; prevention of monopoly and concentration through the antitrust laws and regulation of business performance. Prereq: 2510.

3341 Government and Business II (3) Topics in antitrust policy, direct regulation, and other forms of social control; regulating information, product and manageriyally; policy, economy; business relations; selected cases. Prereq: 3340.

3410 Principles of Labor Economics I (3) Supply of and demand for labor; 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: 2520.

3420 Principles of Labor Economics II (3) American labor history, structure and philosophy of contemporary unions, nature of collective bargaining, and dispute settlement.

4000 Special Topics (3) Student-generated course offered at convenience of department upon student initiation. Subject matter and contents determined by students and instructor with approval of department. Prereqs determined by department each time course is offered. Prereq: 3120 or consent of instructor.

4130 Business Cycles (3) Fluctuations in income, 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. Period covered: 1776 through 1936. Prereq: 2510-20 and consent of instructor.

4170-80 Introduction to Mathematical Economics (3, 3) Application of mathematical methods in theoretical and technical aspects of economic phenomena. Designed for undergraduate students who have limited training in analytic geometry and calculus. Must be taken sequentially. 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 of international economics and economic development. Prereq: 3210 or 3220.

4231 The Political Economy of Latin America (3) Description, analysis, and comparison of major economic problems and policies of various Latin American countries. (Same as Latin American Studies 4231.)

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

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: 2520.

4260 Economics of Resources and Environmental Policy (3) Economic analysis of environmental policy and allocation of resources. Benefits and costs of development and policies to improve and impacts of growth on environment. Prereq: 2510.


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: 2520.

4430 Labor Legislation (3) Economic background and effects of governmental regulation of labor relations, with emphasis on detailed examination of National Labor Relations Act as amended. Prereq: 3420.

4440 Labor Legislation (3) Social insurance, welfare and governmental regulation as remedies for the problem of economic insecurity. Economics of the Social Security Act, unemployment insurance, worker's compensation and related legislation. Prereq: 2520.


4510 Monetary Theory and Policy (3) Role of money in the economy. Examination of factors that affect demand for and supply of money. Evaluation of current policy. May not be taken for credit by students who have completed Finance 4510.

4750 Public Finance (3) Taxation and other revenue systems, problems of collective consumption, external effects and public choice.

4760 Public Expenditure Evaluation (3) Benefit-cost analysis, public sector investment criteria, and the social cost of capital.

4770 State and Local Finance (3) Emphasis on revenue systems and policy division of tax sources. May not be taken for credit by students who have completed Finance 4370.

4990 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 81 for information on graduate programs. Consult the Graduate Catalog for listing of graduate level courses.

Finance

Professors: W. W. Dotterweich (Chairman), Ph.D. Pennsylvania; L. P. Anderson, Ph.D. Ohio; G. H. Gales, Ph.D. Oregon; D. S. Hois, Ph.D. New York; R. E. Shrivella, Ph.D. California; C. P. White (Emeritus), Ph.D. Pennsylvania.

Assistant Professors: M. Wachowicz, Jr., Ph.D. Illinois; D. Choi, Ph.D. Pennsylvania; J. A. L. Auxier, Ph.D. Iowa; T. P. Boehm, Ph.D. Pennsylvania.

Prerequisites: Accounting 2110-20 (or 3210 for 2130), Economics 2510-20, and Statistics 2100 for all courses offered in the finance department.

Finance (349)


3510 The U.S. Financial System (3) Examines U.S. financial system as environment which affects business and economic decisions. Coverage includes: overall functions of money and credit, banking system, other financial intermediaries, interest rate theory, money and capital markets, financial systems, monetary policy, and international banking and financial markets.

4110 Investment Analysis (3) Regulations and functions of security markets; mechanics of security trading; roles of investment bankers, dealers, and brokers; and evaluation of marketable securities such as common stock and corporate bonds. Prereqs: 3130 and Statistics 3220 or 4310 or 3110.

4120 Portfolio Analysis and Management (3) Principles underlying construction and management of investment portfolios. Topics include: measures of investment risk; evaluation of portfolio performance; portfolio revision; and international diversification. Prereq: 4110.

4310 International Financial Management (3) Rigorous analysis of international financial aspects of a multinational firm. Integrates the relevant topics from corporate finance, international financial markets, international monetary theory, and management of foreign exchange risk. Prereq: consent of instructor.

4515 Financial Markets and Institutions (3) Intensive study of financial institutions and markets where they transact. Analysis of money and bond markets; determinants of the level of interest rates; analysis of differences in rates on different securities; mathematics of bond pricing; international financial markets. Prereqs: 3510 and 3120.

4520 Commercial Banking (3) Analyzes key role of banks in economy and management issues involved in running profitable bank in rapidly changing economic, competitive, and regulatory environment. Analysis is made of asset, liability, and capital management decisions, bank revenues, cost and profitability, impact of EFTS on costs and profits, current and regulatory changes and international banking issues. Prereqs: 3120 and 3510.

4650 Theory of Financial Management (3) Analyzes important decision-making topics in financial management. These include valuation, capital budgeting under uncertainty, cost of capital, capital structure theory, and dividend policy. Prereqs: 3130-36 and Stat 3220.

4660 Problems in Financial Management (3) Application of decision-making procedures to realistic problems in financial management, emphasizing case analysis. Topics covered include financial analysis, short-term sources of funds, long-term capital structure, and capital budgeting. Prereq: 4650.

4700 Business and Public Risk Management (3) Identification and measurement of pure risks facing business or governmental unit associated with property, liability, and personnel exposures. Emphasis is on implementation of best methods of dealing with risks at lowest cost consistent with good financial management. Credit not given for both 4700 and Insurance 3220.

1Wm. Voigt Professor of Insurance.
2Blount National Bank Professor of Finance.
3Distinguished Chaired Professor of Banking and Finance.
3010 Principles of Management (3) Analysis of basic management functions of planning, organization, and controlling. E.
3110 Production Management (3) Analysis of production functions. Prereq: 2100 or Mgmt. 3460. Not available for management majors with concentrations in operations or personnel. E.
3111 Operations Management (3) Analysis and synthesis of concepts and techniques for decision making in the production 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. F, W.
3330 Experiences in Organizational Behavior (3) General concepts and personal experience, interpersonal and organizational communication, practice and content determined by the instructor. F, W.
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.
3500 Survey of Administrative Services (3) Introduction to the basic functions of the modern automated office: information creation, production, duplication, storage/retrieval, and distribution. Career opportunities in these business information services. Students working in the Office Systems Concentration may not receive credit for Mgmt. 3500. F, S.
3510 Management of the Automated Office (3) Principles of management applied to the basic office information system: implications of automation on the equipment, procedures, and personnel in the performance of basic office functions of origination, production, and distribution. Prereq: Mgmt. 3010, Bus. Admin. 2750 or Comp. Science 1410 or consent of instructor. F, W.
3520 Design and Control of Records System (3) Information storage/retrieval function of the office. Planning and organizing office records system configuration including records maintenance procedures. Requirements for personnel and equipment. Prereq: Mgmt. 3010, Bus. Admin. 2750 or Comp. Science 1410. F, W.
3600 Management Information Systems (3) Introduction to management information systems. Analysis of organizational information needs, management decisions relating to technology and systems design, organizational impact, and use of information systems. Prereq: Comp. Science 1410 and Mgmt 3100. F, W, S.
4110 Office Systems Analysis (3) Analysis of information flow in a business office with implications for improving productivity within the office environment. Simplification of procedures of forms, impact of automated hardware on office functions, and cost-benefit analysis. Prereq: Mgmt. 3510, 3520, Ind. Engr. 3600 or consent of instructor. F, W.
4120 Cases in Office System Management (3) Synthesis of office systems concepts through case study method, written reports and oral defense of alternative strategies. Human problems as they relate to management of automated office heavily emphasized. Prereq: Mgmt. 3510, 3520, 4200, 4110 or consent of instructor. W, S.
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. Emphasis on skills related to personal and written justification of results. Prereq: Senior standing or consent of instructor. F, W.
4230 International Business Management (3) Analysis of factors significant to the manager in international business activities. W.
4320 Organization Structure and Behavior (3) Structure and behavior of organizations, models, concepts, and problems. F, W.
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, W, S.
4420 Advanced Industrial Problems (3) Cases in production management. Prereq: 15 hrs. in major including 4410. F, S.
4460 Organizational-Industrial Psychology (3) An analytical and empirical approach to application of psychological tools and knowledge to organizations. Prereq: Statistics 3110 or (Statistics 3510 with consent of instructor). Cannot be taken for credit by students who have credit for Management 3460. (Same as Psychology 4460). F, W, S.
4470 Job Analysis and Evaluation (3) Job evaluation as basis for control of wages and salaries. Prereq: 4480. F, W, S.
4520 Evaluation of Personnel Programs (3) Methodologies for criterion development analyzed in areas of selection, training, job evaluation, safety, and labor relations; performance evaluation emphasized. Prereq: 4480-70; Statistics 3110.
4530 Personnel Problems Seminar (3) Case problems in personnel analyzed, applying experimental method and conclusion from personal research as reported in professional journals. Prereq: 4480-70; 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 cases on managerial functions of planning and control in business firm or not-for-profit organization. Emphasis on formal long-range strategic planning in changing environment. Team project to develop long-range plan for hypothetical enterprise. S.
4801-02-03 Readings and Research in Personnel Management (1, 2, 3) Prereq: 4460, Statistics 4310, and consent of instructor. 4803-E.
GRADUATE See page 81 for information on graduate programs. Consult the Graduate Catalog for listing of graduate level courses.

Management Science Programs
Professors: R. S. Garfinkel (Chairperson), Ph.D. Johns Hopkins.
Associate Professor: J. K. Ho, Ph.D. Stanford; R. E. Rosenthal, Ph.D. Georgia Tech.

Management Science (627)
2110-20 Decision Models (3, 3) Introduction to the use of quantitative techniques in the decision-making process. Prereq: Mathematics 1560, Statistics 2160, and Computer Science 1410 or Office Administration 2750.
GRADUATE See p. 81 for information on graduate programs. Consult the Graduate Catalog for listing of graduate level courses.

Marketing and Transportation
Professors: D. J. Barnaby (Chairman), Ph.D. Purdue; F. W. Davis, Jr., Ph.D. Michigan State; G. N. Dicer, Ph.D. Ohio State; J. L. Frye, Ph.D. Florida; F. L. Hendrix, Ph.D. North Carolina (Chapel Hill); C. J. Langley, Jr., Ph.D. Pennsylvania State; W. B. Locander,
Marketing (362)
Economics 2510-20 or the equivalent are prerequisite to all courses in Marketing. Marketing 3110-20 or the equivalent are prerequisite to all other 3000 or 4000-level marketing courses.

3110 Introduction to Marketing (3)

3120 Marketing Management (3)
Analysis of marketing management. Identifying market opportunities, planning marketing programs, implementing competitive strategies. Prereq: 3110. E.

3310 Marketing Channels (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: 3110-20. E.

3410 Buyer Behavior (3)
Industrial and ultimate consumer purchasing behavior. Theories underlying buying decision process, consumer decision making and pivotal concepts in behavioral sciences. E.

3510 Marketing Research (3)
Planning and obtaining information for marketing decision making. Information needs, data collection process, methods of analysis, and interpretation procedures are integrated to serve the decision maker. Prereq: 3110-20. E.

4140 Sales Force Management (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. F, W, S.

4150 Advertising Management (3)
Mass communications theories and concepts. Advertising and its relationship to marketing program of firm. E.

4230 International Marketing (3)
Marketing strategies in international business. Prereq or coreq: Business Administration 3110 or consent of instructor. F, W, S.

4610 Market Opportunity Analysis (4)
Developing understanding of various approaches available for evaluating opportunity that may exist within a market. Emphasis on relationship between analysis of marketing 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: 3510. F, W, S.

4710 Marketing Decisions and Strategies (4)
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 3410, 3510 and 4610 or consent of instructor. Course should be taken as close to graduation as possible. E.

4806 Honors: Executive-in-Residence Seminar (3)
Student interaction with top-level marketing executives is used as a primary vehicle to show how conceptual marketing knowledge 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. F. This is a recommended but not required prerequisite. S.

4818-28 Honors: Marketing (3, 5)
Marketing trends and developments. Advanced marketing theory and application. Can be substituted by eligible students for other on-campus directional cognitions of department. Prereq: Consent of department. E.

GRADUATE
See page 81 for information on graduate programs. Consult the Graduate Catalog for listing of graduate level courses.

Transportation (381)
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)
The transportation and distribution industry as a vital part of the nation's social and economic structure. Prereq: Econ. 2510-20. E.

3115 Introduction to Logistics (3)
Business logistics as a functional area within the firm and as a strategic element of the marketing mix. Discussion of logistical system components and their interrelationships. Prereq: Econ. 2510-20, Statistics 2100. E.

3120 Logistics and Traffic Management (3)
The purchase and use of transportation services as related to the firm's logistical mission. Emphasis on determination of transportation strategy and relationships to purchasing and materials management. Prereq: 3115. E.

4150 Transportation Law and Policy (3)
The evolution of government involvement in transportation, evaluation of past and present regulatory and promotional policies, business and legislative agencies and procedures under governing statutes. E.

4415 Freight Carrier Operations (3)
Analysis of freight operations, including pick-up and delivery, terminal and line-haul functions, considered by each mode individually and in coordination with each other. F, W, S.

4510 Passenger Transportation (3)
Analysis of the urban and inter-city air and surface passenger markets, the issue of public versus private ownership of passenger carriers and examination of government policy in passenger transport, significance of future technological developments. E.

4510 Carrier Cost Analysis and Pricing Strategy (3)
Development of costing framework, pricing strategies, analysis of pricing strategies, and the management of logistical systems. W.

4620 Carrier Management Seminar (3)
Determining and evaluating of current carrier strategy including the establishment of individual carrier mission and goals and development of marketing and cost control strategies. Prereq: Minimum of 18 hours in transportation/logistics including 4415 and 4610. E.

4720 Logistics Systems Management Seminar (3)
Senior seminar in development of business logistics strategies and the management of logistical systems. Course approach includes case studies, lectures, and logistics management simulation. Prereq: 3115. E.

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. E.

4810-15 International Transportation and Logistics (3, 5)
Multi-national distribution strategy, import-export traffic management, ocean shipping, international air and surface operations, comparative transport policy. Prereq or coreq: Bus. Admin. 3110. F, W, S.

4820 Current Topics in Transportation and Logistics (3)
Seminar designed to study specific current problems in transportation and distribution. Topic announced prior to offering. May be repeated once for credit. Prereq: Consent of instructor.

4988 Honors: Executive-in-Residence Seminar (3)
Student interaction with top-level transportation and distribution executives. Focus on the strategic decisions making process. Prereq: Senior standing and consent of instructor. E.

4998 Honors: Independent Study (3)
Directed research and study on subject of mutual interest to student and staff member. GRADUATE
See page 81 for information on graduate programs. Consult the Graduate Catalog for listing of graduate level courses.

Statistics (396)


Associate Professors: H. A. Lasater, Ph.D. Rutgers; R. G. O'Brien, Ph.D. University of North Carolina (Chapel Hill); G. B. Ranney, Ph.D. North Carolina State (Raleigh); R. D. Sanders, Ph.D. Texas; M. S. Younger, Ph.D. Virginia Polytechnic.

Assitant Professors: M. G. Leitma, Ph.D. Kent; J. L. Schmidmahmer, Ph.D. University of Pittsburg.

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 latter 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: Mathematics 1560 or 1850. E.

3110 Regression and Correlation Methods (3)
Methods of linear and multiple-linear regression and correlation; non-parametric measures of association. Can be taken for credit by students who have credit for 4310. Prereq: 2100 or 3450. E.

3220 Analysis of Time Series (3)
Some statistical methods applicable to analysis of trends and time series; graphical presentation and analysis, index numbers, curve fitting, correlation, trends, analysis seasonal and cyclical variation. Prereq: 2100 or 3450. E.

3310 Industrial Statistics (3)
The Shewhart Control Charts for means and variation measures, proportion non-conforming, and number non-conformities per unit; process capability analysis. Special applications. Prereq: 2100 or 3450. F, W, S.

3320 Industrial Statistics II (3)
Acceptance sampling for attributes and variables inspection. Introduction to reduction of quality. Elements of life testing and reliability. Prereq: 3310. S.

3450 Probability and Statistics for Engineers I (3)

3460 Probability and Statistics for Engineers II (3)

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. F, W, S.

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. E.

4500 Statistical Inference (3) Properties and inferential applications of the common probability distributions in statistics. Goodness-of-fit tests; non-parametric statistics including ranking methods for two independent samples. Elementary theory with applications. Prereq: 3460 or equivalent. W.

4600 Analysis of Variance and Experimental Design (3) Analysis of variance techniques for one way and multivariate designs, conditional expectations, waiting time distributions; Poisson processes, life-testing, queuing. Markov processes. Introductory theory with applications. Prereq: 3460 or equivalent. W.

4608 Honors: Corporate Executive-In-Residence Seminar (3) Interaction with top corporate executives from a wide spectrum of business disciplines, (Accounting, Finance, Management, Marketing, Transportation, etc.) Discussion of domestic and international strategic planning as it is applied in major U.S. corporations. The focus of executive presentations and small group discussion will be on goods and services in consumer and industrial settings. Prereq: Senior Standing, Finance 3120-30, Mgmt. 3010, 3110, Marketing 3110-20, and consent of instructor.

3300 Business Career Planning and Placement (1) Exploration of career opportunities in business. Process of making the career decision, preparing for and conducting a job campaign. Using the Placement Office. S/NC only. Prereq: satisfactory progression to upper-division level in Business or Liberal Arts Business Minor.

3700 Essentials of Financial Planning (3) Introduction to individual financial planning through study of basic tools, money management, decision making, services of financial institutions, asset protection, insurance applications, and financial planning goals.

3800 Introduction to Real Estate (3) Survey of five fundamental areas of concern to real estate industry and real estate analysts: 1) economics of real estate market; 2) legal environment of real estate; 3) real estate finance and financial institutions; 4) appraisal; and 5) real estate investment. Credit not given for both 3800 and Real Estate 3610.

4319 Business Letter Writing (3) Principles, practices, and mechanics of effective business letters and memoranda; principles applied by solving communication cases; emphasis placed on letters and memos as initial sources of ideas in communications systems of the business firm. May not be taken for credit by students who have completed Office Admin. 4310. F, W, S.

4320 Business Communications: Reports (3) Concept of communications applied to business reports. Process of collecting, analyzing pertinent business information and the appropriate presentation of business reports as a basis for executive decision making. Computer technology utilized. Prereq: Junior standing. May not be taken for credit by students who have completed Office Admin. 4320. F, W, S.

4430 Business Policy (3) Analysis of business problems and managerial decision making through case studies and written reports. Prereq: Core requirements except Business Law (see page 76) and senior standing. Open only to students who have been admitted to the Upper-Division programs of the College of Business Administration. E.

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 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.

4816-20-30 Problems in Office Administration (1-3, 1-3, 1-3) Subject and title vary each quarter. May be repeated. Maximum 3 hrs. each course. May not be taken for credit by students who have completed Office Admin. 4816-20-30.

GRADUATE
See page 81 for information on graduate programs. Consult the Graduate Catalog for listing of graduate level courses.

Interdepartmental Unit
Business Administration (205)
2750 Electronic Data Processing (3) Development of skill in Fortran programming with special emphasis on business applications. Prereq: Math 1560 or 1860 or equivalent. May not be taken for credit if Comp. Science 1410 or Office Admin. 2750 has been completed. E.

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 2520 or consent of instructor.

3200 Business Career Planning and Placement (1) Exploration of career opportunities in business. Process of making the career decision, preparing for and conducting a job campaign. Using the Placement Office. S/NC only. Prereq: satisfactory progression to upper-division level in Business or Liberal Arts Business Minor.

3700 Essentials of Financial Planning (3) Introduction to individual financial planning through study of basic tools, money management, decision making, services of financial institutions, asset protection, insurance applications, and financial planning goals.

3800 Introduction to Real Estate (3) Survey of five fundamental areas of concern to real estate industry and real estate analysts: 1) economics of real estate market; 2) legal environment of real estate; 3) real estate finance and financial institutions; 4) appraisal; and 5) real estate investment. Credit not given for both 3800 and Real Estate 3610.

4319 Business Letter Writing (3) Principles, practices, and mechanics of effective business letters and memoranda; principles applied by solving communication cases; emphasis placed on letters and memos as initial sources of ideas in communications systems of the business firm. May not be taken for credit by students who have completed Office Admin. 4310. F, W, S.

4320 Business Communications: Reports (3) Concept of communications applied to business reports. Process of collecting, analyzing pertinent business information and the appropriate presentation of business reports as a basis for executive decision making. Computer technology utilized. Prereq: Junior standing. May not be taken for credit by students who have completed Office Admin. 4320. F, W, S.

4430 Business Policy (3) Analysis of business problems and managerial decision making through case studies and written reports. Prereq: Core requirements except Business Law (see page 76) and senior standing. Open only to students who have been admitted to the Upper-Division programs of the College of Business Administration. E.

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 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.

4816-20-30 Problems in Office Administration (1-3, 1-3, 1-3) Subject and title vary each quarter. May be repeated. Maximum 3 hrs. each course. May not be taken for credit by students who have completed Office Admin. 4816-20-30.

GRADUATE
See page 81 for information on graduate programs. Consult the Graduate Catalog for listing of graduate level courses.

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
D. R. Ploch, Research Professor, Ph.D. North Carolina
K. E. Quindry (Emeritus), Research Professor, Ph.D. Kentucky
W. F. Fox, Associate Director, Research Associate Professor, Ph.D. Ohio State
S. E. Bott, Research Assistant, B.S. Nebraska (Lincoln)
S. F. Dacibolan, Research Assistant Professor, Ph.D. Ohio State
R. A. Hofler, Research Assistant Professor, Ph.D. North Carolina
J. W. Mayo, Research Assistant Professor, Ph.D. Washington University (St. Louis)
B. B. Vickers, Research Associate, B.A. Mary Washington
P. A. Price, Research Associate, B.S. Tennessee
C. A. Campbell, Research Assistant, M.S. So. Illinois
Kelly Leiter, Acting Dean
Paul G. Ashdown, Assistant Dean for Undergraduate Studies
Herbert H. Howard, Assistant Dean for Graduate Studies and Research
Gail Palmer, Advisor

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 composed 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. Once they have completed the core, students may pursue special interests.

The Accrediting Council on Education in Journalism and Mass Communications has accredited the advertising, news-editorial, public relations and master's programs. The college is a member of the Association of Schools of Journalism and Mass Communication and the Broadcast Education Association.

**Association and Progression Requirements**

Association with the College of Communications may take place when students first enter UTK, or after students have completed freshman and sophomore courses, and the core courses for a specific major. At least 45 quarter hours in residence in the college is required for a degree. Those interested in Communications should obtain a copy of the Program Planning Guidebook available from the College of Communications Advising Center.

Freshmen associated with the College of Communications are classified as pre-majors. They apply to a major degree program after they pass the College Association Test (typing, spelling and grammar) and complete, with at least a 2.0 cumulative average, the following courses or appropriate honors courses:

- English 1010; 1020; 1032 (with a minimum grade of C in each course)
- 12 hours of natural science
- History 1510-20
- Communications 1110
- 8 or 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 Association Test (typing, spelling and grammar) before enrolling in or preregistering for Journalism 2215 Basic News Writing. Students may not enroll in courses numbered above 3000 in the college until they have successfully completed the core courses. The core courses by major are:

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

Communications students must earn at least a C grade in all College of Communications courses that fulfill graduation and progression requirements.

Students from other UTK colleges may apply for association with the College of Communications after they have completed all the pre-major requirements including the association tests and core courses and have 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 advisor, they may plan individual programs leading to newspaper, magazine, radio, television, public relations, or advertising careers. 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.

Students in other divisions of the University may take, with the permission of the instructor and the college advisor, certain courses for training in effective communication or for an understanding of the social role of the mass media. Such students should bring a transcript to the college advising center and should obtain approval in advance for a program of instruction.

Students who have completed the basic courses in the college may earn practicum credit for professional work in the field. Approval of the advisor and the department head must be obtained before such work is begun.

**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 a student change from regular credit to S/NC 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 from the employer or instructor to take 18 or more hours must be obtained from the assistant dean for undergraduate studies or the undergraduate advisor with the recommendation of the student's advisor and department chairman or school director.

Cooperative Program
The college, in cooperation with the University-wide Undergraduate Cooperative Education Program, has developed a limited cooperative program with the media, advertising and public relations agencies, and the communications departments of business organizations where interested students may 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. The typical program is arranged for a five-year period, with the student spending the final three quarters of the senior year on campus.

The Cooperative Program gives a 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. Meenan Distinguished Professorship
As a result of a $200,000 grant to the School of Journalism in 1970 by the Edward J. Meenan Foundation, outstanding journalists and journalism educators are brought to the campus as distinguished professors. The professorship is named for the late Edward J. Meenan, a native of Knoxville who was a founder of one of the country's leading newspaper chains and the first president of the New York Times Company.

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 Office of 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, with headquarters 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 program of 194 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 for the major will be applied to the 194 hours.

HIGHLANDS DEFICIENCIES
AMERICAN HISTORY
Students taking 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. Students with two years of high school credit in a language will not receive credit for college-level work in the same language at the first year level.

NATURAL SCIENCE
Students must take 12 hours of the following in natural science: Astronomy 1510-20-30; Biology 1210-20-30; Botany 1110-20; Chemistry 1510-20-30; Geology 1410-20-30; or Physics 1410-20-30 or 1210-20-30.

ENGLISH
This requirement is fulfilled by English 1010; 1020 and 1032 or appropriate honors courses. The eight hours of literature may be selected from English 2510-20-31-32-33 and 2650-70-80 (and Comparative Literature 2010 for journalism majors). Upper-division literature courses may be substituted by students with a B+ average in freshman English at UTK.

PROFESSIONAL COURSES
The advertising major requires certain professional courses that may be selected from the following: Accounting 2110-20; Advertising 3740, 4510-20-30, 5310, 5350; Art 2515, 3515; Broadcasting 2750, 3360, 3650, 4020-30, 4670-80; Educational Curriculum and Instruction 4750; English 1033; Journalism 2710-20, 3120, 3410, 4710, 3810, 3910, 3990, 4410-20, 4950; Marketing 3510, 4140, 4230, 4610, 4710; Business Administration 2750, 4310-20; Psychology 3120, 4640; Speech 3011; Statistics 4415.

SCHOOL SCIENCE AND HUMANITIES
Social science electives may be selected from geography, economics, political science, psychology, history, sociology, anthropology, classics (except grammar and composition courses), and upper-division philosophy and religious studies courses. Journalism majors may also take some black studies and women's studies courses as social science electives with consent of their advisor. Humanities electives may be selected from English, speech and theatre (not performance courses), music (except applied music), art (except applied art), classics (except grammar and composition), language culture courses (not grammar and composition), and upper division philosophy and religious studies.

GENERAL ELECTIVES
All electives are subject to the advisor's consent. 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.

Undergraduate Curriculum

Advertising
Freshman Hours Credit
English 1010-20, 1032 ........................................ 9
Natural science electives .................................. 12
History 1510-20 .................................................. 8
Foreign language ................................................. 8
Sociology 1510 ..................................................... 4
Communications 1110 ....................................... 4
Economics 2510 .................................................. 4
Sophomore Sociology 1520 .................................. 4
Speech 2311 ......................................................... 4
Economics 2520 .................................................. 4
English literature electives .................................. 8
Mathematics 1540-50 ........................................... 8
Marketing 3110-20 ............................................. 6
Psychology 2500, 2530 ....................................... 8
Journalism 2215 .................................................. 4
Art 2516 ............................................................. 4
Junior Political Science 2510-20 ............................. 8
Anthropology electives ....................................... 4
Advertising 3000 .................................................. 3
Advertising 3630 .................................................. 4
Advertising 3850 .................................................. 3
Advertising 4000 .................................................. 3
Journalism 3310 .................................................... 3
Mathematics 3000 ................................................. 4
Marketing 4210 .................................................... 3
Professional courses ........................................... 6
General electives ................................................. 7
Senior Advertising 4360 ........................................... 3
Advertising 4460-70 ............................................. 7
Computer Science 3010 ...................................... 3
Professional courses ........................................... 14
Social science or humanities electives .................. 10
General electives ................................................. 9
Total: 194 hours

*See Requirements for Graduation.

Broadcasting
LOWER-DIVISION CURRICULUM (Required of all broadcasting majors)
Freshman Hours Credit
English 1010-20, 1032 ........................................ 9
Natural science electives .................................... 12

### REQUIREMENTS FOR GRADUATION

Students must satisfy the following requirements for graduation:

- **General Electives**: 10 hours
- **Liberal Arts Electives**: 11 hours
- **Social Science and/or Natural Science Electives**: 16 hours
- **Social Science and/or Humanities Electives**: 12 hours
- **General Electives**: 6 hours

**Total Hours**: 194

### DEPARTMENTS OF INSTRUCTION

#### Communications (259)

**Professors**:
- P. G. Ashdown, Ph.D.
- D. B. Dunlap, Ph.D.
- J. B. Haskins, Ph.D.
- D. M. M.Blair, Ph.D.
- D. M. M. Blair, Ph.D.
- D. M. M. Blair, Ph.D.
- D. M. M. Blair, Ph.D.
- D. M. M. Blair, Ph.D.

**Associate Professors**:
- M. Miller, Ph.D.
- A. D. Fletcher, Ph.D.
- J. B. Haskins, Ph.D.
- D. M. M. Blair, Ph.D.
- D. M. M. Blair, Ph.D.

**Assistant Professors**:
- J. B. Dunlap, Ed.D.
- J. B. Haskins, Ph.D.
- D. M. M. Blair, Ph.D.
- D. M. M. Blair, Ph.D.
- D. M. M. Blair, Ph.D.

**Instructor**:
- A. L. Landini, M.S.

### Advertising (012)

**Professors**:
- A. D. Fletcher, Ph.D.
- J. B. Haskins, Ph.D.
- D. M. M. Blair, Ph.D.

**Associate Professors**:
- J. B. Dunlap, Ed.D.
- J. B. Haskins, Ph.D.
- D. M. M. Blair, Ph.D.

**Instructor**:
- A. L. Landini, M.S.
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. W.

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: 3560 with grade of C or better or consent of instructor. F, W, S.

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

4460 Cases and Problems (3) Case approach to study of advertising problems. Analysis of campaigns and trends. Prereq: 3530, 3560, and 4360 with grades of C or better, or consent of instructor. F, W, S.

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. F, W, S.

4510-20-30 Practicum (1, 1, 1) Prereq: 3000. May be repeated. Maximum credit 6 hrs. S/N/C. E.

4570 Independent Study (3) May be repeated. Maximum credit 6 hrs. E.

GRADUATE
Consult the Graduate Catalog for listing of graduate level courses.

Broadcasting (202)


Associate Professors: B. A. Moore, Ph.D. Ohio; I. G. Simpson, M.S. Syracuse; M. W. Singletary, Ph.D. Southern Illinois.

Assistant Professor: 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. F, W, S.

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

3610 Radio-Television News (3) Theory and technique of gathering news 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. F, W, S.

3650 Radio-Television Writing (3) Theory and technique of writing broadcasting scripts except news and dramatic specials. Special events, interviews, musical scripts, radio talks, documentaries, and promotion material. F, W, S.

3670 Television News (3) Theory and techniques of gathering news, video tape and film production for television. Ethical considerations and editing techniques. Emphasis on news and information programs. 2 hrs. and 1 lab. F, W, S.

4010 Speech for Broadcasting (3) Fundamental broadcasting techniques affecting the announcer; pronunciation and oral interpretation of general American speech. Prereq: Speech 2311. F, W, S.

4020 Radio Production (3) Study of radio production, past and present. Familiarization with production tools and techniques. Group and individual production activities. Prereq: 2750 or consent of instructor. F, W, S.

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. W, F.

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. F, W, S.

4040 Advanced Television Production (3) A semi-independent course in program origination, producing, directing, and performing with orientation to the professional broadcast student. Prereq: 4030 or consent of instructor. S.

4510-20-30 Practicum (1, 1, 1) Prereq: Consent of instructor. S/N/C. F, W, S.

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

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

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. S.

4970 Independent Study (3) May be repeated. Maximum credit 6 hrs. F, W, S.

School of Journalism (594)

Professor: J. A. Crook (Director), Ph.D. Iowa State; P. G. Ashdown, Ph.D. Bowling Green; G. A. Everett, Ph.D. Iowa; J. B._header, Ph.D. Indiana; B. K. Leiter1, Ph.D. Southern Illinois; D. D. Nimmo, Ph.D. Vanderbilt.

Associate Professors: J. N. Adamson, M.S. Tennessee; M. Miller, Ph.D. Michigan State; J. L. Morrow, Ph.D. Toledo; S. L. Puett2, M.S. Tennessee; M. W. Singletary, Ph.D. Southern Illinois; F. B. Thomsen, Jr., M.A. Florida.

Assistant Professor: M. L. Kern-Foxworth, Ph.D. Wisconsin.

Instructor: A. L. Landini, M.S. Murray State.

4215 Basic News Writing (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, 1020, 1031 or 1032 or 1033. F, W, S.

4220 Reporting (4) Method of gathering and writing news for mass media. Emphasis on news and news features. Prereq: 2210 or 2215. F, W, S.

4230 Editing for Mass Media (3) Methods and practice in judging news, editing copy, and writing headlines. Introduction to video display terminals. Emphasis on precise word use. Prereq: 2220. F, W, S.

4270 Public Relations (3) Theories and principles of public relations. Overview of PR as a management tool of business, government, institutions, and organizations. Prereq: 2210 or 2215. E.

3110 Communications History (3) Development of newspapers, magazines, broadcasting, photography, film, and book publishing in America and their relationship to society. F, W, S.

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

3120 Advanced Reporting (3) Gathering and writing news in depth on current issues and concerns under deadlines. Special emphasis on public relations. Use of video display terminals. Prereq: 2230. F, S.

3220 News Editing and Display (3) Principles and practice in making up newspapers and magazines. Advanced work in copyrewriting, reediting, and headlines. Picture editing. 1 hr. and 2 labs. Prereq: 2230. F, S.

3310 Graphic Arts in Journalism (3) Survey of printing processes and associated technologies. Emphasis on publication design, offset techniques, and computer technology. E.

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

3510 Practicum in Journalism, (1-3) Supervised experience in news writing and editing. May be repeated for credit. Prereq: 2230. Maximum 3 hours. F, W, S.

3720 Advanced Public Relations (3) Preparation of communications materials to gain support from various publics using public relations programs. Prereq: 2710. F, W, S.

3810 Specialized Publications (3) Editorial and design considerations for company publications and small magazines. Special emphasis on design, offset techniques, and computer technology. E.

3910 Basic News Photography (3) Principles of photojournalism including historical perspectives and special techniques. Medium and small format reflex cameras used. Darkroom techniques for black-and-white photography. Prereq: Consent of instructor. E.

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

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. E.

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

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

4410 Mass Media and Society (3) Roles and responsibilities of mass media in society. Critique of mass media performance. Media codes and controls on the media. E.
4420 Newspaper Management (3) Daily and weekly business operations. Developments in newspaper management. S.

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. E.

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, F, W, S.

4810 Journalism in the High School (3) Functions and methods of publications. Staff organization, writing, and editing techniques, editorial problems, and business management. SU.

4910 News and Feature Photography (3) Advanced principles and methods in black-and-white photography. Emphasis on news and feature 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. W.

4970 Independent Study (3) May be repeated. Maximum credit 6 hrs.

GRADUATE
Consult the Graduate Catalog for listing of graduate level courses.
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.
Director, English Language Institute.
D. A. Myers, Ph.D., Florida.

Assistant Director:
G. D. Cooper, Ed.D., Tennessee.

Staff Assistant:
M. A. Barry

Administrative Assistants:
A. F. Accawi, I. P. Keith, M. Rahbar.

Coordinators:

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) 974-6688.

University Evening School

Director:

Directors, Off-Campus Graduate Program:
Oak Ridge—S. C. Bills, Ed.D., Tennessee; Nashville—J. D. Westbrook, Ph.D., V. P. I.

Assistant Director, Oak Ridge—V. Maya, M.S., Tennessee.

Associate Directors:

Assistant Directors:

Coordinator:
M. K. Warden, M.S., Tennessee.
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 majors in Accounting, General Business, Economics, or Management (General concentration);
- College of Liberal Arts — Bachelor of Arts with majors 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 an 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 and Morristown to complete the Master's degree in Curriculum and Instruction with a major in Curriculum.

The Evening School administers off-campus centers at Nashville and Oak Ridge where courses leading to advanced degrees in science and engineering are offered. At Oak Ridge, graduate study programs lead to an MBA with concentrations in Management or Statistics, as well as Master's and Doctoral degrees in Engineering, Mathematics, and Physical Sciences. Graduate programs leading to the Master's 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 two Knoxville area hospitals. The University Evening School provides academic foundation courses for the independent Schools of Nursing at 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. The College of Liberal Arts also cooperates with the Evening School by providing extended hours several times a week to advise students. A veterans' advisor 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
Legislation gives Tennessee citizens who are 65 years of age or older, or 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.
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 and (3) to promote and conduct experimental opportunities, programs, and services; the evaluation and improvement of educational groups, and others interested in school personnel, educational agencies, professional and scholarly accomplishment.

The Claxton Education Building and Claxton Addition contain many modern and functional facilities for the professional education of teachers including classrooms, laboratories, seminar rooms, faculty and administrative offices, the Educational Media Center, the Reading Center, the Curriculum Laboratory, the Teaching Laboratory, and the Bureau of Educational Research and Service.

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

Association with the College

Course Load—Permission for more than 19 hours in a quarter must be obtained from the Coordinator of Undergraduate Student Services. A normal course load in the college is 16-19 hours.

Application for association with the College of Education may be made at any time. Association is granted to undergraduate students who have earned at least a 2.5 high school grade point average (4 point scale) and an ACT composite score of 17 or SAT/CEEB combined score of 750. Students ineligible for association will be classified as University Students: Education Interest. Deficiencies in the area of grade point average may be satisfied by evidence of a 2.5 grade point average in at least 45 quarter hours of post-secondary coursework. Whereas, deficiencies with respect to ACT, SAT, or CEEB scores may be eliminated by evidence of passing scores on the California Achievement Test (Level 19). (Students classified as University Students: Education Interest desiring to enter Industrial Education, Option 3: Concentration in Training and Supervision are required only to earn a 2.5 grade point average in at least 45 quarter hours of post-secondary coursework and are not required to take the California Achievement Test.)

Students designated as University Students: Educational Interest are required to meet each quarter with their advisors until such time that they gain association with the College of Education.

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 considered in determining students’ eligibility for association.

Admission to Non-Teacher Education Programs

Students wanting information about the College of Education’s non-Teacher Education programs (Dance, Sports Management, Sports Communication, Physical Fitness Specialist, Movement Sciences, Public Health, Recreation, Distributive Training Option, and Training in Industrial Education) should contact the specific program area coordinator or chairperson for admission requirements.

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 sixtieth 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).) Students, except for junior-senior transfer students, are encouraged to take the basic skills tests during their second quarter of full-time attendance, using time during their first quarter of attendance for test preparation. (Details on preparation are available through the assistant dean's office.)

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 successfully 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 UT 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.)

Program area requirement 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 admission to Teacher Education should contact the Assistant Dean for Support Services, 212 Claxton Education Building.

Admission to Student Teaching

Application for all student teaching programs must be filed no later than January 1 of the academic year preceding the actual experience. For example, if a student plans to student teach during the 1986-87 academic year, application must be made by January 1, 1986. Applications for student teaching must be received approximately four occasions each quarter. A schedule of the application meetings is available in the Office of the Director of Student Teaching, 117 Claxton Education Building.

Making application for student teaching is not contingent upon admission to the Teacher Education Program. Students should apply for student teaching at the appropriate time regardless of their status in the process of admission to the Teacher Education Program.

Following are the general prerequisites for student teaching. Student teaching prerequisites for specific program areas (art, elementary, P.E., etc.) are available in the student teaching office or from the academic advisor.

(1) Full admission to the Teacher Education Program no later than the quarter preceding student teaching.

(2) Completion of the professional core courses (Education 3010, 3020, 3030 and Educational Psychology 2430 or 3810).

(3) Completion of field experiences required in the program curriculum.

(4) Completion of the special methods courses at The University of Tennessee.

(5) Completion of at least nine quarter hours of prescribed course work in Professional Education at The University of Tennessee at Knoxville.

(6) Senior standing and a minimum grade point average of 2.5 on work completed at The University of Tennessee, and a cumulative grade point average of 2.5.

In addition, any record established by the student in the Office of Student Conduct will be reviewed by the Admissions and Retention Committee.

The 15-quarter hour student teaching experience is evaluated on a satisfactory-no credit basis and the hours are included in the University policy requiring a 2.0 in the last 45 hours.

The most important criterion in placing student teachers 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 value of the course to the student and the substitution is approved by the appropriate one, the substitution request form should be forwarded to the Office of the Assistant Dean for Support Services, 212 Claxton Education Building. Approved petitions are forwarded to the Dean of Admissions for further approval and filing in the Records Office.

Professional Education courses taken at junior or community colleges may not be substituted for lower division (1000/2000 level) courses or may be used as electives. These courses may be substituted for upper division (3000/4000 level) Professional Education courses.

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 Dean, 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 designee 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 2.5.

(2) A minimum grade point average of 2.5 in teaching field(s).

(3) Satisfactory performance of the student teaching experience.

(4) Completion of a methods course in each area of endorsement.

(5) Fulfillment of all special recommendations of the Admissions and Retention Committee.

(6) Successful completion of at least one three-quarter hour course dealing with the learning and behavioral characteristics of handicapped students.

(7) Successful completion of at least six quarter hours in methods of teaching reading for all applicants desiring to teach (a) grades kindergarten through eight and (b) grades nine through twelve language arts.

(8) Successful completion for at least three quarter hours in teaching reading in content areas for all applicants not included in the above requirement (7).

(9) Applicants seeking Tennessee teaching certification are required to take the National Teacher Examination (NTE). (Students may obtain further information regarding the NTE in the Advising Center, 212 Claxton Education Building.)

For students entering Teacher Education fall 1984.

Graduate Programs

The College of Education, through the Graduate School, offers programs leading to
I. Curricula for Elementary Teachers

A. Grade 1 through Grade 8 (certification for grades 1-8)

GENERAL EDUCATION.............. 81 hours
Communications (13 hours)
English 1010 or 1011; 1020; 1031 or 1032 or 1033 (English 1019 may be required for some students); Speech 2021 or 2311.

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, 3000, 3210, School Health 3410, 3510.

Humanities (12 hours)
Literature 8 hours; Art Education 3500 or Music Education 3500 (4 hours).

Mathematics (9 hours)
Literatures 2110, 2120, 2130.

Natural Science (16 hours)
8 hours in biological science. Recommended series are Biology 1210, 1220 (1230) or Botany 1110, 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... .9 hours
Educ. C & I 3010*, 3020*, 3030*.

ELEMENTARY EDUCATION COURSES...49 hours

SPECIALIZED COURSES..............33 hours
Educational Psychology 3430; Educational Psychology 3100; Art Ed. 3100, 3150; Music Ed. 2100, 3110; Ed. C&I 3510; Special Ed. 3333; C&I 4303; C&I 4240; C&I 4750.

TOTAL MINIMUM REQUIRED.....191 hours

B. Kindergarten through Grade 8
(Certification for Kindergarten - Grade 8)

GENERAL EDUCATION.............. 81 hours
Communications (13 hours)
English 1010 or 1011; 1020; 1031 or 1032 or 1033 (English 1019 may be required for some students); Speech 2021 or 2311.

*Requires admission to Teacher Education Program.
**Mathematics (9 hours)**
Mathematics 2110-20-30.

**Social Sciences (18 hours)**
History (4); Child and Family Studies 4610; Economics 2510; Anthropology 2530 or 3410 or Human Services or Sociology 4320 or 4510; Electives (from anthropology, economics, geography, human services, political science, sociology).

**Interdisciplinary Studies in Home Economics (16 hours)**
H.E. 1510, 1520, 2510, 3510.

**Humanities (16 hours)**
P. E. 3450, 3660; Pub. Health 3320; health electives; Art Ed. 2100, 2110; Music Ed. 2100, 3110; Educ. C & I 4303; CFS 3120; C & I 3316.

**Natural Sciences (20 hours)**
Recommended series or combinations:
A. Biological science (8-12 hours) Biology 1210-20-30 or Botany 1110-20
B. Physical Science (8-12 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.

**Mathematics (4 hours)**
Recommended for a major in science.

**CORE PROFESSIONAL EDUCATION**

**Teaching Subject Areas**
For Program 59-69.

**Specialized Professional Education (43 hours)**
Special Ed 3333, Educational Psychology 3810; 6 hours of appropriate methods courses; Educ. C & I (Field Experience): two from 2020, 3521, 3522 (4 hours); plus 3523 (2 hours); (Student Teaching): 4100, 4710, 4720 (16 hours); Ed. C & I 4304, and 6 hours of electives selected from the College of Education.

**TEACHING SUBJECT AREAS AND ELECTIVES**

**TOTAL MINIMUM REQUIRED**

**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 at least 3 years high school mathematics (e.g. Algebra I, Geometry, and Algebra II). A combination of the two.

**Elective Courses**

**TOTAL MINIMUM REQUIRED**

**III. Curricula for Secondary Education (7-12)**

**General Education**

**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)
Psychology 2500. Educ. Psychology 2430; 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.

**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**

**Teaching Subject Areas**
For Program 59-69.

**Specialized Professional Education (43 hours)**
Special Ed 3333, Educational Psychology 3810; 6 hours of appropriate methods courses; Educ. C & I (Field Experience): two from 2020, 3521, 3522 (4 hours); plus 3523 (2 hours); (Student Teaching): 4100, 4710, 4720 (16 hours); Ed. C & I 4304, and 6 hours of electives selected from the College of Education.

**Teaching Subject Areas and Electives**

**Total Minimum Required**

See outline of the programs below.

**Total Minimum Required**

**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 minor pending in speech.
   b. 27 hours in Speech, Theatre and Broadcasting. At least three courses must be taken in each of two of these areas.
   c. Students enrolled in this program must take two English English 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.

*Requires admission to Teacher Education Program.
1* Mathematics 2012 recommended for students who will take only 4 hours.
2* Includes history, economics, geography, sociology, political science, psychology.
3* Requires admission to Teacher Education Program.
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) Mathematics1 (27 hours) must include at least a 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) Physical Sciences—12 hours in each of the following: Chemistry, geology, physics.
   (3) Electives—12 additional hours in physical sciences and/or mathematics. Endorsements: Mathematics and Physical Science, General Science.
b. Mathematics and Related Sciences (72 hours)
   (1) Mathematics1 (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 physics2 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) Mathematics1 (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.
2. Mathematics major with a minor (72 hours)
a. Mathematics1 (45 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.
b. 27 hours in another subject used as a minor. 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, 3219, 3220, 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. Note: 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). 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. Geology (16 hours). Chemistry (8 hours). Physics (excludes 1410 series) (4 hours). Geography (4 hours). Cartography, conservation, oceanography, or soil science (6 hours). Endorsements: Earth Science, General Science.
   c. Natural Science (72 hours minimum) Basic requirement of 12 hours in each of 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 2110-20-30). 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. Biology is considered as one subject for high school endorsement. Endorsements: General Science (Possible endorsements: Biology, Chemistry, and Physics).
   2. Subject Majors in Science The only single subject majors in science leading to teacher certification are chemistry and physics. Majors 45 quarter hours; minors 27 quarter hours. Endorsements: 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. 8 quarter hours in economics, including 2510-20 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)
      English 1010 or 1011; 1020; 1031 or 1032 or 1033; and 3-4 hours in speech.
   Health and Physical Education (3 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)
      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 3010*, 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.

TEACHING AREAS AND ELECTIVES ..........84 hours
A. Major (60 hours) Art Educ. 3100, 3120, 3220, 3320, 4110, 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) May be taken in any department.

TOTAL MINIMUM REQUIRED ..........183 hours

B. Music Education
   GENERAL EDUCATION ..........66-68 hours

*Requires admission to Teacher Education Program.

1 Only one freshman-level biological science series permitted.
2 Plant and animal science courses required.
3 Certification in any single area.

*Requires admission to Teacher Education Program.
Communications (12-13 hours)
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, an literature course, and one elective from art, anthropology, literature, foreign language beyond introductory level, history, philosophy, or religious studies.

Mathematics (4 hours)
Natural Science (11-12 hours)
Three courses from the biological and/or physical sciences, to include Physics 1810.

Psychology (4 hours)
Psychology 2500.

Social Studies (12 hours)
Any 12 hours, to include at least two areas.

CORE PROFESSIONAL EDUCATION ..........................9 hours
Ed. C & I 3010*, 3020*, 3030*

SPECIALIZED PROFESSIONAL EDUCATION ..................22 hours

TEACHING AREAS AND ELECTIVES ......................85-110 hours
Concentration in Vocal Music (Voice Principal)
a. 25 quarter hours in Music Education:
   1010-20; 2110; 2411; 2421; 2431; 2433;
   3130; 3150; 4420; 4510.

   b. 60 hours in music: 111-12-33; 1113-23-33;
      2111-21-31; 2111-23-33; 2340; voice 22 hours;
      required ensemble 11 hours plus piano proficiency.

Concentration in Vocal Music (Piano or Organ Principal)
a. 25 quarter hours in Music Education:
   1010-20; 2110; 2411; 2421; 2431; 2433;
   3130; 3150; 4420; 4510.

   b. 66 hours in music: 1111-21-31; 1113-23-33;
      2111-21-31; 2111-23-33; 2340; piano or organ 22 hours; voice 6 hours;
      required ensemble 11 hours.

Concentration in Elementary Music Education (Voice Principal)
a. 51 quarter hours in Music Education:
   1010-20; 2110; 2411; 2421; 2431; 2433;
   3141-42; 3150; 4420; 4441-42-43; 4450.

   b. 60 hours in music: 1111-21-31; 1113-23-33;
      2111-21-31; 2111-23-33; 2340; voice 22 hours; piano proficiency; required
      ensemble 11 hours.

Concentration in Elementary Music Education (Piano or Organ Principal)
a. 31 quarter hours of Music Education:
   1010-20; 2110; 2411; 2421; 2431; 2433;
   3141-42; 3150; 4420; 4441-42-43; 4450.

   b. 66 hours in music: 1111-21-31; 1113-23-33;
      2111-21-31; 2111-23-33; 2340; piano or organ 22 hours; voice 6 hours;
      required ensemble 11 hours.

Concentration in Instrumental Music
a. 35 quarter hours in Music Education:
   1010-20; 2411-12-13; 2421-22-23; 2431-
   30-33; 3130; 3150; 3410; 4420; 4430.

   b. 72 hours in music: 1111-21-31; 1113-23-33;
      2111-21-31; 2111-23-33; 2340; 3112;
      3122 or 4124; principal instrument 22 hours;
      secondary instrument 6 hours; piano proficiency; required ensemble 11 hours.

   c. Music Education 4460 is required for all students whose principal instrument is wind or percussion.

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 instrument 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.

   Instrumental 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. Major in Physical Education
   1. Teaching Track
   a. Elementary Physical Education (K-8)

   GENERAL EDUCATION ..........85 to 93 hours
   English 1010, 1020 and 1031 or 1032 or 1033; Speech 2311 or 2331; Humanities electives (minimum of four courses in three areas, 12 to 16 hours) selected from the following: anthropology, art, music, philosophy, religious studies, English literature, foreign languages (2000-level and above), and history (3000 and 4000-level only); Social Science electives (minimum of four courses and three areas, 12 to 16 hours) selected from the following: anthropology, economics, geography, history, political science and sociology; Chemistry 1110-20 or 1510-20; Zoology 2920, 2930 and 4940; Physics 1450; Math 1540 or 1841 or any math course other than 1020 and 2012; Psychology 2500; School Health 3210; Physical Educ. 1032, 1042, 1052, and 1062.

   b. Secondary Physical Education (7-12)
   GENERAL EDUCATION ..........81 to 89 hours
   English 1010, 1020 and 1031 or 1032 or 1033; Speech 2311 or 2331; Humanities electives (minimum of four courses and three areas, 12 to 16 hours) selected from the following: anthropology, art, music, philosophy, religious studies, English literature, foreign languages (2000-level and above), and history (3000 and 4000-level only); Social Science electives (minimum of four courses and three areas, 12 to 16 hours) selected from the following: anthropology, economics, geography, history, political science and sociology; Chemistry 1110-20 or 1510-20; Zoology 2920, 2930 and 4940; Physics 1450; Math 1540 or 1841 or any math course other than 1020 and 2012; Psychology 2500; School Health 3210; Physical Educ. 1032, 1042, 1052, and 1062.

   SPECIALIZED PROFESSIONAL PHYSICAL EDUCATION Track
   Physical Educ. 1032, 2032, 1022 or 2022, 2042, 2052, 2500, 4530, 4420, and any two of the following: 4360, 4365, 4370, 4375, 4380, 4385, 4390, and 4395.

   b. Secondary Physical Education (7-12)
   GENERAL EDUCATION ..........81 to 89 hours
   English 1010, 1020 and 1031 or 1032 or 1033; Speech 2311 or 2331; Humanities electives (minimum of four courses and three areas, 12 to 16 hours) selected from the following: anthropology, art, music, philosophy, religious studies, English literature, foreign languages (2000-level and above), and history (3000 and 4000-level only); Social Science electives (minimum of four courses and three areas, 12 to 16 hours) selected from the following: anthropology, economics, geography, history, political science and sociology; Chemistry 1110-20 or 1510-20; Zoology 2920, 2930 and 4940; Physics 1450; Math 1540 or 1841 or any math course other than 1020 and 2012; Psychology 2500; School Health 3210; Physical Educ. 1032, 1042, 1052, and 1062.

   PHYSICAL EDUCATION CORE ..........22 hours
   Physical Educ. 1000, 2600, 3210, 3320, 3550, 3720, 4170, and 4220.

   PROFESSIONAL EDUCATION ..........7 hours
   Educ. C&I 3020* and 3030*; Physical Educ. 4100.

   *Requires admission to Teacher Education Program.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>3550, 3720, 4170, and 4220</td>
<td>General Electives</td>
</tr>
<tr>
<td>Physical Educ. 1500, 3600, 4110, 4140 and 4200</td>
<td>Physical Education Major activities courses</td>
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<tr>
<td>100 College of Education</td>
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<tr>
<td><strong>PROFESSIONAL PHYSICAL EDUCATION</strong></td>
<td>13 hours</td>
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<tr>
<td>Physical Educ. 2012, 2032, 2042, 2052; and any two of the following: Physical Educ. 1022, 2022, and 2062 or 2072; Physical Educ. 2500, 3500, 4560, 4365, 4570 or 4375, 4380 or 4385, 4390 or 4395; and any of the following not already taken: 4370, 4375, 4380, 4385, 4390, 4395; Physical Educ. 4230 and 4420.</td>
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<tr>
<td><strong>SPECIALIZED PROFESSIONAL EDUCATION</strong></td>
<td>18 hours</td>
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<tr>
<td>School Health 4412 and 4420; Nutrition and Food Sciences 3120 and 4160; Recreation 3880; and any seven of the following: Accounting 2110, Advertising 3000, Communications 1100, Computer Science 1410, Economics 2510, Finance 3120, Management 3010 and 3460, Office Admin. 4310 or 4320, Marketing 4140.</td>
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<tr>
<td><strong>PROFESSIONAL PHYSICAL EDUCATION</strong></td>
<td>33 hours</td>
</tr>
<tr>
<td>Any aquatics course, Physical Educ. 2032, 2042, 2756, 2795, 3040, 2700, 3250, 3560, 4110, 4115, 4260, 4360, and 4420.</td>
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<tr>
<td><strong>GENERAL ELECTIVES</strong></td>
<td>16 to 24 hours</td>
</tr>
<tr>
<td>Maximum of 6 hours in 1000 and 2000-level Physical Educ. Major activity courses and/or Physical Educ. 2700-level courses (which must be different from the Physical Educ. Major activity courses); also excluded are Physical Educ. 2730, 2734, 2756, 2757, 2759, 2762, 2792, and 2794.</td>
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<td><strong>TOTAL MINIMUM REQUIRED</strong></td>
<td>200 hours</td>
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<tr>
<td><strong>Elementary Physical Education Endorsement for Physical Education Majors in the Secondary Physical Education Track. (22 hours)</strong> (Open only to Physical Education Major students in Secondary Physical Education Teaching Track.) Any aquatics course, Physical Educ. 3350, 3460, 3470, 3480, 3570, 4500 and 4670.</td>
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</tr>
<tr>
<td><strong>2. Physical Fitness Specialist Track</strong></td>
<td><strong>GENERAL EDUCATION</strong> 85 to 93 hours</td>
</tr>
<tr>
<td>English 1010, 1020 and 1031 or 1032 or 1033; Speech 2311 or 2331; Humanities electives (minimum of four courses and three areas, 12 to 16 hours) selected from the following: anthropology, art, music, philosophy, religious studies, English literature, foreign languages (any level), and history (3000 and 4000-level only); Social Science electives (minimum of four courses and three areas, 12 to 16 hours) selected from the following: anthropology, economics, geography, history, political science, and sociology; Chemistry 1110-20-30 or 1510-20-30; Zoology 2920, 2930 and 4940; Math 1540 or 1840; Psychology 2500; Physics 4140; and any five 1000 and 2000-level Physical Educ. Major activities.</td>
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<tr>
<td><strong>PHYSICAL EDUCATION CORE</strong></td>
<td>22 hours</td>
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<tr>
<td>Physical Educ. 1000, 2600, 3120, 3320, 3550, 3720, 4170, and 4220.</td>
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<tr>
<td><strong>PROFESSIONAL EDUCATION</strong></td>
<td>10 hours</td>
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<tr>
<td>Psychology 3150, Computer Science 4310; English 4140.</td>
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<tr>
<td><strong>PROFESSIONAL PHYSICAL EDUCATION</strong></td>
<td>16 hours</td>
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<tr>
<td>Any five 1000 and 2000-level Physical Educ. Major activities courses; Physical Educ. 3560 and 4330.</td>
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<tr>
<td><strong>SPECIALIZED PROFESSIONAL EDUCATION</strong></td>
<td>22 hours</td>
</tr>
<tr>
<td>Physical Educ. 1000, 2600, 3120, 3320, 3550, 3720, 4170, and 4220.</td>
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<tr>
<td><strong>SPECIALIZED PROFESSIONAL PHYSICAL EDUCATION</strong></td>
<td>3 hours</td>
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<tr>
<td>Physical Educ. 3250.</td>
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<tr>
<td><strong>GENERAL ELECTIVES</strong></td>
<td>14 to 22 hours</td>
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<tr>
<td>Maximum of 6 hours in 1000 and 2000-level Physical Educ. Major activity courses and/or Physical Educ. 2700-level courses (which must be different from the Physical Educ. Major activity courses); also excluded are Physical Educ. 2730, 2734, 2756, 2757, 2792, and 2794.</td>
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<td><strong>TOTAL MINIMUM REQUIRED</strong></td>
<td>200 hours</td>
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<tr>
<td><strong>b. Motor Behavior/Sport Psychology Area of Concentration</strong></td>
<td><strong>GENERAL EDUCATION</strong> 79 to 87 hours</td>
</tr>
<tr>
<td>English 1010 and 1020 and 1033; Speech 2311 or 2331; Humanities electives (minimum of four courses and three areas, 12 to 16 hours) selected from the following: anthropology, economics, geography, history, political science, and sociology; Chemistry 1110-20 or 1510-20; Zoology 2920, 2930 and 4940; Math 1540 or 1840; Psychology 2500; Physics 4140; and any five 1000 and 2000-level Physical Educ. Major activities.</td>
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<tr>
<td><strong>PHYSICAL EDUCATION CORE</strong></td>
<td>22 hours</td>
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<tr>
<td>Physical Educ. 1000, 2600, 3120, 3320, 3550, 3720, 4170, and 4220.</td>
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<tr>
<td><strong>PROFESSIONAL EDUCATION</strong></td>
<td>0 hours</td>
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<tr>
<td>Psychology 3150, Computer Science 4310; English 4140.</td>
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<tr>
<td><strong>PROFESSIONAL PHYSICAL EDUCATION</strong></td>
<td>16 hours</td>
</tr>
<tr>
<td>Any five 1000 and 2000-level Physical Educ. Major activities courses; Physical Educ. 3560 and 4330.</td>
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<tr>
<td><strong>SPECIALIZED PROFESSIONAL PHYSICAL EDUCATION</strong></td>
<td>33 hours</td>
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<tr>
<td>Psychology 2520, 2530 and 3319; at least one of the following area courses and lab: Psychology 3120-29, 3210-19, 4230-39, and 4710-19; and a minimum of 16 hours selected from the above and/or the following: Psychology 2540, 3559, 4650, 4670, 4850, 4870, and 4880.</td>
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<tr>
<td><strong>SPECIALIZED PROFESSIONAL PHYSICAL EDUCATION</strong></td>
<td>12 hours</td>
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<tr>
<td>Physical Educ. 3600, 4140, 4340, and 4350.</td>
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<tr>
<td><strong>GENERAL ELECTIVES</strong></td>
<td>20 to 28 hours</td>
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<tr>
<td>Maximum of 6 hours in 1000 and 2000-level Physical Educ. Major activity courses and/or Physical Educ. 2700-level courses (which must be different from the Physical Educ. Major activity courses).</td>
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</tbody>
</table>
Ed. Major activity courses; also excluded are Physical Educ. 2730, 2734, 2756, 2757, 2792, and 2794.

**TOTAL MINIMUM REQUIRED** ..... 200 hours

c. Kinesiology/Biomechanics Area of Concentration

**GENERAL EDUCATION** ..... 79 to 87 hours
- English 1010 and 1020 and 1033; Speech 2311 or 2331; Humanities electives (minimum of four courses and three areas, 12 to 16 hours) selected from the following: anthropology, art, music, philosophy, religious studies, English literature, foreign languages (any level), and history (3000 and 4000-level only); Social Science electives (minimum of four courses and three areas, 12 to 16 hours) selected from the following: anthropology, economics, geography, history, political science, and sociology; Chemistry 1110-20 or 1510-20; Zoology 2920, 2930 and 4940; Math 1540 or 1840; Psychology 2500; Physics 1540; and any five 1000 and 2000-level Physical Educ. Major activities.

**PHYSICAL EDUCATION CORE** ..... 22 hours
- Physical Educ. 1000, 2600, 3210, 3320, 3550, 3720, 4170, and 4220.

**PROFESSIONAL EDUCATION** ..... 10 hours
- Psychology 3150, Computer Science 4310; English 4140.

**PROFESSIONAL PHYSICAL EDUCATION** ..... 16 hours
- Any five 1000 and 2000-level Physical Educ. Major activities courses; Physical Educ. 3560 and 4330.

**SPECIALIZED PROFESSIONAL EDUCATION** ..... 40 hours
- Philosophy 1510, 1520, 2310, 2410, 2510, 2550, 3111, 3121, 3131, and 3141.

**SPECIALIZED PROFESSIONAL PHYSICAL EDUCATION** ..... 6 hours
- Physical Educ. 3430 and 4350.

**GENERAL ELECTIVES** ..... 19 to 27 hours
- Maximum of 6 hours in 1000 and 2000-level Physical Educ. Major activity courses and/or Physical Educ. 2700-level courses (which must be different from the Physical Educ. Major activity courses); also excluded are Physical Educ. 2730, 2734, 2756, 2757, 2792, and 2794.

**TOTAL MINIMUM REQUIRED** ..... 200 hours

4. Sports Management Track

**GENERAL EDUCATION** ..... 81 to 89 hours
- English 1010 and 1020 and 1033; Speech elective; Humanities electives (minimum of four courses and three areas, 12 to 16 hours) selected from the following: anthropology, art, music, philosophy, religious studies, English literature, foreign languages (any level), and history (3000 and 4000-level only); Social Science electives (minimum of four courses and three areas, 12 to 16 hours) selected from the following: anthropology, economics, geography, history, political science, and sociology; Natural Science electives (12 hours including Physics 1450); Math 1540-50-60; and any ten 1000 and 2000-level Physical Educ. Major activity courses or 2700-level courses.

**PHYSICAL EDUCATION CORE** ..... 22 hours
- Physical Educ. 1000, 2600, 3210, 3320, 3550, 3720, 4170, and 4220.
are Physical Edu. 2730, 2734, 2756, 2757, 2792, and 2794.

TOTAL MINIMUM REQUIRED ..... 200 hours

**B. Minor in Coaching** (29-32 hours)
- Zoology 2920 and 2930 or 3080, and 4940; Physical Edu. 3000, 3250, 3320, 3190, 4220, 4160, and any two of the following: 3110, 3120, 3130, 3190, and/or 3200.

**C. Major in Dance**

**GENERAL EDUCATION**
- **Communications** (15 hours)
  - English 1010 or 1011; 1020 and 1031 or 1032 or 1033; Speech 2311.
- **Humanities** (15 hours)
  - Art 1815-25; English literature 2000 and above; one elective from philosophy, foreign language, upper-division history, or religious studies.
- **Mathematics** (4 hours)
  - Any electives selected from biological and/or physical sciences.
- **Psychology** (8 hours)
  - Psychology 2500 plus 4 hours of electives.
- **Social Sciences** (8 hours)
  - Sociology 1510 or 1520 plus 4 hours of electives.
- **Health and Safety** (3 hours)
  - Any electives selected from biological and/or physical sciences.
- **Cultural Arts** (32 hours)
  - Theatre 1320-30-40, 2111, 2221 or 2231; Music 1000, 1210, 2320, 2330, 2340 or 2310.

**DANCE**
- **77 hours**
  - Physical Education 1052, 2040-50-60, 2070, 3010-20, 3040-41, 3060-61-62, 3070-75, 3350 or 4300, 3320, 4020, 4050, 4060, 4080-90, 4550, 4560.

**CONCENTRATION AREAS**
- **12 hours**
  - Ballet: Physical Education 4000, 4005, or Modern: Physical Education 3030, 4010.

**ELECTIVES**
- **20 hours**

**TOTAL MINIMUM REQUIRED ..... 200 hours**

Students are not permitted to audit any dance class. All classes must be taken on letter grade or S/NC basis.

**D. Minor in Dance** (29-31 hours)

**Option I. Physical Education**
- 2070, 3040, 3070, 4080, 4090; 2040-50-60 or 3060-61-62; 4 hours selected from 3010 and/or 3020; 6 hours selected from 3075 or 4000 or 4050.

**Option II. Physical Education**
- 2070, 3010, 3040, 4080, 4090; 2040-50-60 or 3060-61-62; 4 hours selected from 3070 and/or 3075; 6 hours selected from 3020 or 3030 or 4010.

**Option III. Physical Education**
- 1052, 2070, 3010, 3070, 4080, 4090, 4150, 4550, 3060-61-62; 4 hours selected from 3075-4000-4005 or 4 hours selected from 3020-3030-4010. Students are not permitted to audit any dance class. All classes must be taken on letter grade or S/NC basis.

**E. Major in Recreation**

**GENERAL EDUCATION**
- **98 hours**
  - **Mathematics** (4 hours)
    - Any electives selected from biological and/or physical sciences.
  - **Psychology** (8 hours)
    - Psychology 2500 plus 4 hours of electives.
  - **Social Sciences** (8 hours)
    - Sociology 1510 or 1520 plus 4 hours of electives.
  - **Humanities** (15 hours)
    - Art 1815-25; English literature 2000 and above; one elective from philosophy, foreign language, upper-division history, or religious studies.
  - **Communications** (15 hours)
    - English 1010 or 1011; 1020 and 1031 or 1032 or 1033; Speech 2311.
  - **Health and Safety** (3 hours)
    - Any electives selected from biological and/or physical sciences.
  - **Cultural Arts** (32 hours)
    - Theatre 1320-30-40, 2111, 2221 or 2231; Music 1000, 1210, 2320, 2330, 2340 or 2310.

**DANCE**
- **77 hours**
  - Physical Education 1052, 2040-50-60, 2070, 3010-20, 3040-41, 3060-61-62, 3070-75, 3350 or 4300, 3320, 4020, 4050, 4060, 4080-90, 4550, 4560.

**CONCENTRATION AREAS**
- **12 hours**
  - Ballet: Physical Education 4000, 4005, or Modern: Physical Education 3030, 4010.

**ELECTIVES**
- **20 hours**

**TOTAL MINIMUM REQUIRED ..... 200 hours**

Students are not permitted to audit any dance class. All classes must be taken on letter grade or S/NC basis.

**F. Major in Public Health Education**

**GENERAL EDUCATION**
- **87 hours**
  - **Psychology** (8 hours)
    - Any electives selected from biological and/or physical sciences.
  - **Social Sciences** (16 hours)
    - Sociology 1510 or 1520 plus 4 hours of electives.
  - **Humanities** (16 hours)
    - Any electives selected from biological and/or physical sciences.
  - **Communications** (15 hours)
    - English 1010 or 1011; 1020; 1032; Speech 2311.
  - **Health and Physical Education** (11 hours)
    - School Health 3210.
  - **Social Studies** (19 hours)
    - Geography 2510-20; Philosophy 1510-20 or 2510-20 or Sociology 1510 or 2510-20.
  - **Psychology** (4 hours)
    - Psychology 2500.
  - **Social Studies** (19 hours)
    - Economics 2510; Geography 2110 or 2120 or Political Science 2510 or 2520 or History 1510-20 or 2510-20 or Sociology 1510.

**CORE PROFESSIONAL**

**EDUCATION**
- **9 hours**
  - Ed. C & I 3010-20-30-40. (9) or Public Health 9 hours at the 4000 level Non-Teacher Certification.

**SPECIALIZED PROFESSIONAL**

**EDUCATION**
- **29 hours**
  - Education C & I 3470; Public Health 4060; Health 4700-10-20 or Public Health 4700-10-20 or Public Health 4740-60 - Non-Teacher Certification.

**TEACHING AREAS AND ELECTIVES**
- **66 hours**

**TEACHING AREAS AND ELECTIVES**
- **66 hours**

**Special Note:** If some of the specific courses

**ELECTIVES**
- **66 hours**

**TOTAL MINIMUM REQUIRED ..... 192 hours**

**Sports:** Physical education—2 team sports, 3 individual sports.
Requires admission to Teacher Education Program.

I. Minor in School Health Education (30 hours)
School Health 3000, 3210, 3410, 3650, 3420; Safety 3520; Public Health 3310, 3320, 4410; Nutrition 1230 or School Health 3420 or School Health 3620.

VI. Special Education*
Concentration in Speech and Hearing
NOTE: Only grades of C and above in the major area of study will be credited for certification and graduation.

GENERAL EDUCATION ......................... 84 hours
Communications (12 hours) English 1010-20, Speech 2311.
Health and Physical Education (6 hours) Nutrition 1230, electives.

SPECIALIZED PROFESSIONAL EDUCATION 42 hours

EDUCATION	 19 hours
SPECIALIZED PROFESSIONAL EDUCATION	 29 hours

HUMANITIES	 12 hours
English—any 4 hours from literature, Anthropology 2530, Philosophy or religious studies electives; Art or music elective. Mathematics (4).

NATURAL SCIENCE	 10 hours
Psychology 2500.

SOCIAL STUDIES	 6 hours
Economics 2510; Geography 2110 or 2120 or Political Science 2510 or 2520; History 1510-20 or 2510-20; Sociology 1510.

CORE PROFESSIONAL EDUCATION ............. 9 hours

TEACHING AREAS AND ELECTIVES ............. 66 hours
School Health required courses (9): 3410, 3420, 3620; School Health electives (3): 4720, 4810-20-30; Public Health required courses (9): 3310, 3320, 3330; Public Health electives: Safety 3520, Biology 1230, Microbiology 2910-19, Psychology 3150, Sociology 1520, Social Psychology 3130, Nutrition 1230, electives. 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

G. Major in School Health Education

GENERAL EDUCATION ......................... 87 hours
Communications (13 hours) English 1010-20-33: Speech 2311.
Health and Physical Education (11 hours) School Health 3000, 3210, 3410; Physical Education electives.
Humansities (16 hours) English—any 4 hours from literature; Anthropology 2530; Philosophy or religious studies electives; Art or music elective. Mathematics (4).

NATURAL SCIENCE	 10 hours
Chemistry or physics sequence: Biology 1210-20 or Zoology 2920-30.
Psychology 2500.

SOCIAL STUDIES	 19 hours
Economics 2510; 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 42 hours

EDUCATION	 29 hours
Economics 2510; Geography 2110 or 2120 or Political Science 2510 or 2520; History 1510-20 or 2510-20; Sociology 1510.

TEACHING AREAS AND ELECTIVES ............. 66 hours
School Health required courses (9): 3410, 3420, 3620; School Health electives (3): 4720, 4810-20-30; Public Health required courses (9): 3310, 3320, 3330; Public Health electives: Safety 3520, Biology 1230, Microbiology 2910-19, Psychology 3150, Sociology 1520, Social Psychology 3130, Nutrition 1230, electives. 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

H. Minor 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.

TOTAL MINIMUM REQUIRED ..... 190 hours

I. Minor in School Health Education (30 hours)
School Health 3000, 3210, 3410, 3650, 3420; Safety 3520; Public Health 3310, 3320, 4410; Nutrition 1230 or School Health 4420 or School Health 3620.

VI. Special Education*
Concentration in Speech and Hearing
NOTE: Only grades of C and above in the major area of study will be credited for certification and graduation.

GENERAL EDUCATION ......................... 84 hours
Communications (12 hours) English 1510-20, Speech 2311.
Health and Physical Education (6 hours) Activities courses recommended plus health and physical education electives (both areas must be represented).
Humansities (16 hours) 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	 18 hours
8 hours biological sequence; 8 hours physical sequence.

Psychology (4 hours) Psychology 2500.

SOCIAL STUDIES	 20 hours
History electives (8 hours); 12 hours from three of the following areas: anthropology, economics, geography, political science, sociology.

General Electives (6 hours).

TOTAL MINIMUM REQUIRED ..... 190 hours

J. Concentration in Speech and Hearing

SPECIALIZED COURSES....................... 42 hours

EDUCATION	 19 hours
Psychology 2520 or 2530. Psychology 3550 or 2540 or Ed. Psych. 2430 or 3810, 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, 4400, 4720, 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 3431, 4342.

TOTAL MINIMUM REQUIRED ..... 181 hours

TOTAL MINIMUM REQUIRED ..... 183 hours

*Requires admission to Teacher Education Program.

VII. Vocational-Technical Education

A. Business Education

See curricula for Secondary Education (7-12) p. 98 for General Education and Professional Education requirements.

63 quarter hours in business and economics to meet five business endorsement areas approved by the department advisor. A statement of requirements and alternative programs may be obtained from the coordinator of business education.

B. Distributive Education

Option 1

GENERAL EDUCATION ................... 71-73 hours
Communications (12 hours) English 1010 or 1011, 1020, 1031 or 1032 or 1033; speech elective.
Health and Physical Education (9 hours) Physical education or health electives.

Mathematics (3-4 hours) Mathematics elective.

HUMANITIES	 12 hours
Literature elective (4) plus 12 hours humanities electives.

NATURAL SCIENCE	 12 hours
Natural science electives.

Psychology (7-8 hours) Psychology 2500, Psychology 2520 or Educ. Psych. 3110.

Social Studies Electives (12 hours) Economics 2510-20; plus 4 additional hours in any social studies other than economics.

PROFESSIONAL EDUCATION .... 42 hours
Ed. C & I 3010*, 3020, 3030*; VTE 4300, Educ. Psych. 3810; VTE 4460-70-80, 4450, 4410-20, 4430-31-32 (3 hours); Ed. C & I 4750; Special Education 3333.

SPECIALIZED COURSES .................... 42 hours
Business Adm. 1110; Office Adm. 4310 or 4320; Accounting 2110; Marketing 3110-20, 4140, 4310, 4315; Finance 3120; Management 3010; Business Law 4110; Vo. Tech. Ed. 4440; Textiles and/or Advertising electives (6 hours).

TOTAL MINIMUM REQUIRED .... 23 hours
Communications (12 hours)

3100 or 3110.

Psychology (7-8 hours) Social Studies (12 hours)

Natural Science (12 hours) Psychology (4 hours)
electives.

Humanities (16 hours)

Literature elective (4); 12 hours humanities electives.

Natural Science (12 hours)

Natural science electives.

Psychology (7-8 hours)

Psychology 2500, 2520, or Educ. Psych.

3100 or 3110.

Social Studies Electives (12 hours)

Economics 2110-20-30; 3 hours elective.

TRAINING SPECIALIST

45 hours

Ed. Psych. 2230, Sociology 3616, Cont. &
Higher Educ. 3960; VTE 4420, 4450-60-70-80,
4430-31-32; Ed. C&I 4750; 12 hours of
support courses selected from: Manage-
ment, Journalism, Merchandising, Office
Admin., Real Estate and Urban Develop-
ment, Advertising, Accounting, Communi-
cations, Vocational-Technical
Ed.; Tourism, Food, and Lodging Admin.;
Psychology, Finance, Computer Science.

SPECIALIZED COURSES

48 hours

Bus. Admin. 1110; Office Admin. 4310-20,
Accounting 2110; Marketing 3110-20, 4140,
4150; Finance 3120; Industrial Man-
egement 3010; Business Law 4110; Textiles
and/or Advertising elective (6 hours) VTE
4440 (9 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)

English (9 hours); speech elective (3
hours).

Health and Physical Education (9 hours)

Health and P.E. electives. (Both areas
must be represented.)

Humanities (15 hours)

Literature elective (4 hours); 11 hours from
two of the following areas: philosophy, anthropo-

logy, 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 rep-
resented: history, anthropology, economics,
geography, political science, sociology.

PROFESSIONAL EDUCATION

12 hours

Ed. C&I 3010*, 3020*, 3030* (select any
two); Special Education 3333; Ed. Psych.
3810.

PROFESSIONAL INDUSTRIAL

EDUCATION

42 hours

Vo. Tech. Ed. 3830, 3860, 4830, 4850,
4870.

OPPORTUNAL COMPETENCY

45 hours

Vo. Tech. Ed. 3810, 3811, 3812.

ELECTIVES

20 hours

TOTAL MINIMUM REQUIRED

186 hours

Option 2. Concentration in Industrial Arts

GENERAL EDUCATION

67 hours

Communications (12 hours)

Vo. Tech. Ed. 3830, 3860, 4830, 4840,
4870, 4795.

PROFESSIONAL INDUSTRIAL

EDUCATION

30 hours

Vo. Tech. Ed. 3830, 3850, 3860, 4840,
4810.

TEACHING AREAS

63 hours

Communication (Drafting, Graphic Arts)

Vo. Tech. Ed. 1620, 2620, 3620, 3672,
Journalism 3910.

Power and Transportation (Prime Movers,
Electricity/Electronics)

Vo. Tech. Ed. 1610, 1630, 2611, 2630,
3630.

Construction and Manufacturing

Vo. Tech. Ed. 1640, 1661, 2641, 2652,
2660, 3640, 3651, 3662, 4660, 4662, 4670.

ELECTIVES

16 hours

TOTAL MINIMUM REQUIRED

186 hours

Option 3. Concentration in Industrial Training

*Requires admission to Teacher Education program.

+Requires admission to Teacher Education Program.

PRIMARY INDUSTRIAL

EDUCATION

45 hours

English (9 hours); speech (3 hours).

Special Education 3333; Ed. Psych.
3000, 3610.

PROFESSIONAL EDUCATION

10 hours

Vo. Tech. Ed. 3830, 3850, 3860, 4840,
4810.

TECHNICAL COMPETENCY

45 hours

VTE 3830, 3860, 4010, 4820, 4830, 4840,
4850, 4851, 4860, 4815, 4896.

ELECTIVES

13 hours

TOTAL MINIMUM REQUIRED

186 hours

D. Agricultural Education

See page 58 for this program.

E. Home Economics Education

See page 138 for this program.

Departments of Instruction

Art and Music Education

Professors:

C. H. Ball (Head), Ph.D. Peabody; A. W. Hum-
phrey (Emeritus), Ed.D. Illinois; J. H. Jones
(Emeritus), Ed.D. Columbia; W. J. Julian, Ph.D.
Northwestern; J. W. Robertson, Ed.D. Columbia;
A. W. Tipps, Ph.D. Michigan.

Associate Professors:

H. L. Gill, B.S. Milwaukee State Teachers;
Tennessee; J. O. Mintz, Ed.D. Columbia; M. C.
Moore, Ph.D. Michigan; A. J. Palmer, Ph.D. UCLA.

Assistant Professor:

J. P. Watkins, M.S. Tennessee.

Art Education (141)

1511 Field Experiences in Teaching Art (1) Field
experiences in which students perform tasks related
to teaching and to teacher roles. S/NC. May be repeat-
ed for credit. F, W, S.
3100 Introduction to Art in Education (3) Philosophy, developmental theory, goals, and media in relation to art education; directed experiences with selected media; field experiences: prerequisite to other art education courses; for both majors and non-art education majors.

3110 Crafts in the Elementary School (3) Prereq: 2110. 1 hr. and 2 labs. A.

3120 Learning Through Studio Experiences: Sculpture and Craft Design (3) 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 (3) Program planning and teaching strategies in elementary art; directed classroom activities with media; lesson planning and field experience.

3220 Learning Through Studio Experiences: Sculpture and Craft Design (3) 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 Educ. 3100 and at least one course in sculpture or crafts. W.

3320 Learning Through Studio Experiences: Graphic Design and Lettering (3) Selected graphic design and lettering experiences; consideration of (1) subject matter, ideas, 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. Media, techniques, and styles of arts and music; methods and materials of teaching art appreciation in the elementary classroom. W.

3511 Field Experiences in Teaching Art (1) Field experiences in which students perform tasks related to teaching and to teacher roles. S/NC. May be repeated for credit. W. S.

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; raises awareness of professional liability. The pre-student teaching seminars must be completed the quarter immediately preceding the semester student teachers complete pre-student teaching seminars spring quarter. Prereq: full admission to the Teacher Education Program in the College of Education. W.

4110 Program Development in Art (3) Foundation readings for philosophy; writing program units; analysis; and field experience. Prereq: Art Ed. 3100 and 9 hours of art education. W.

4200 Designing Teaching Aids for Art (3) Resources for art teaching—identifying, locating, and using; development of slide-tape presentation and other teaching aids for art teaching. Prereq: Art Ed. 3100 and 9 hours of education. W.

4400 Learning through Appreciation and History of Art (3) Review of historical periods; criticism and dialog in application in teaching art. Prereq: Art. Ed. 3100. F.

4450-470-70 Problems in Art Teaching (3, 3, 3) Prereq: Consent of instructor. E.

4400 Strategies for Teaching Art (3) Readings on teaching art and planning for teaching; development of a philosophy, field classroom. Prereq: Art Ed. 3100 and 9 hours in Art Education. S.

4410 The Administration and Organization of Recreational Arts and Crafts Programs (3) Purpose of art education in relation to development of activities, organizational procedures, resources, and coordination required in community arts and crafts programs. A.

GRADUATE

Consult the Graduate Catalog for listing of graduate level courses.

Music Education (707)

The curricula in music education provide for five areas of concentration: vocal music (voice principal), vocal music (piano or organ principal), instrumental music (violin or organ principal), elementary music education (piano or 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. W.

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. F. W. S.

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. E.

2110 Experiences in Classroom Music (3) Vocal, instrumental, rhythmic, listening, music reading, and creative activities. Prereq: Major in music education majors. Prereq: Approval of instructor, one year of music theory, 2 hours and 1 lab. F.

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. 2411-F; 2412-W; 2413-S.

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. 2421-F; 2422-W; 2423-S.

2431-32 Methods, Materials, and Techniques of Brass Class Instruction (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 instruments. Practical use of current instructional materials. 2 hours per week. 2431-F; 2432-S.

2433 Methods, Materials, and Techniques of Percussion Class Instruction (3) 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-F; 2432-S.

3100 Teaching Music in the Primary Grades (3) Singing, rhythmic, instrument, 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.

3130 Teaching Music in the Elementary School (3) Singing, rhythmic, instrument, creative activities, 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. W.

3150 Teaching Music in Junior and Senior High Schools (3) Procedures, techniques, curriculum, scheduling, administrative tasks, materials and equipment, community relations. Prereq: Two years of music theory; coreq: 3511. S.

3410 Teaching Instrumental Music (3) Problems and techniques, materials and equipment selection. Prereq: hour of music education from 2411-21-31 series; coreq: for 3410: 3511. F.

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 art appreciation in the elementary classroom. F. W. S.

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. F. W. S.

4100 Pre-Student Teaching Seminar (3) 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 the semester 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. F. W. S.

4350-60-70 Problems in Music Teaching (3, 3, 3) Reading, 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 sequence. 2 hours and 1 lab. F.

4411-42-43 Teaching Class Piano (1, 1) For majors in music, music education, or elementary education. Prereq: Approval of instructor. A.


4460 Marching Band Techniques (3) Functions, organization, and direction of a school marching band. Prereq: Senior standing and approval of instructor; coreq: 3511. F.

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. W.

GRADUATE

Consult the Graduate Catalog for listing of graduate level courses.

Curriculum and Instruction

Professors:


Associate Professors:


Educational Curriculum and Instruction (301)

Undergraduate programs in the Department of Curriculum and Instruction provide the general professional courses for the pre-service education of teachers in elementary and secondary schools.

1410 Efficient Reading and Study Skills (2,1) Improvement of reading rate, comprehensive vocabulary, and study skills as they relate to content area subjects. May be repeated for a maximum of 1 hour credit for individual laboratory attention. S/NC. F, W, S.

1500 Introduction to Early Education (3) (Same as Child and Family Studies 1500.)

2010 Field Experience in Teaching: Elementary (2) Field experiences in which students perform tasks related to teaching primary or intermediate grade levels in elementary school. S/NC.

2020 Field Experience in Teaching: Secondary (2) Field experiences in which students perform tasks related to teaching in the secondary school. S/NC.

2090 Field Study in Education (3) Problems of teachers in active service in the fields of teaching, curriculum materials, school-community relationships, and school organizations. Undergraduate credit only. E.

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. E.

3030 Social Foundations and Curriculum (3) Culture and society and their influences on curriculum; principles, problems, and procedures of subject matter selection, sequence, grade placement, and time allotment, and state curriculum policies and practices. Undergraduate credit only. E.

3150 Analysis of Teaching (3) Use of interaction analysis to describe and classify verbal interchanges between teacher and student; related non-verbal behavior techniques. Prereq: Consent of instructor. S.

3160 Microteaching (3) Emphasis upon the development of instructional skills. Students teach a series of lessons to small groups of students in elementary or secondary schools. Lessons are videotaped, and the students and instructor evaluate the teaching behaviors recorded on the tape. Prereq: Consent of instructor. F.

3260 Teaching Language Arts in the Elementary School (3) Survey of current curricular approaches and trends. Techniques of teaching vocabulary, spelling, and language. Undergraduate credit only. Should be taken prior to or concurrently with C&I 3280. Prereq: Educ. Psych. 3430 or equivalent, admission to Teacher Education. E.

3268 Developing Social Studies Content Concepts for Elementary School (3) Study of content of Social Studies and development of concepts relevant to elementary social studies. Prereq: Admission to teacher education.

3270 Teaching Social Studies in the Elementary School (3) Methods and materials. Undergraduate credit only. Prereq: Educ. Psych. 3430 or equivalent, admission to Teacher Education. E.

3280 Teaching Developmental Reading in the Elementary School (3) Beginning course in sequence designed to enable preservice teachers to develop skills and understandings necessary for operation of successful developmental reading program in the elementary school. Prereq: Educ. Psych. 3430 or equivalent and admission to Teacher Education. E.

3281 Teaching Developmental Reading in the Elementary School (3) Further course in sequence designed to teach content skills and teaching reading in the elementary school. Prereq: 3280 and admission to Teacher Education. E.

3290 History of Education in the United States (3) Survey of developments in American education. Prereq: Admission to Teacher Education. W.

3300 Teaching Elementary School Mathematics (3) Enables preservice teachers to develop skills and understandings necessary for operation of successful mathematics program in the elementary school. Prereq: Educ. Psych. 3430 or equivalent, Mathemat- ics 2110-20-30, admission to Teacher Education. Must be taken prior to student teaching. E.

3331 Teaching Elementary School Mathematics (3) Methods of teaching elementary school mathematics. Prereq: 3330 or equivalent. E.

3510 Books and Related Materials for Children (3) (Same as Library and Information Science 3510.)

3511 Field Experience in Teaching Elementary (Primary Level K-3) (2) Field experience in which students perform tasks related to teaching and teacher roles. Must be taken prior to student teaching. Prereq: admission to Teacher Education. F, W, S.

3512 Field Experience in Teaching Elementary (Intermediate Level 4-6) (2) Field experience in which students perform tasks related to teaching and teacher roles. Must be taken prior to 3513 and student teaching. Prereq: 3511. F, W, S.

3513 Field Experience in Teaching Elementary (2) Field experiences in which students perform tasks related to teaching and teacher roles. Must be taken in sequence and prior to student teaching. Prereq: 3511; 3512; four of the following: C&I 3260, 3270, 3280, 3290, 3311, 3720; 3520 and admission to Teacher Education. S/NC. F, W, S.

3520 Books and Related Materials for Young People (3) (Same as Library and Information Science 3520.)

3521-22-23 Field Experiences in Teaching: Secondary (2, 2, 2) Field experiences in which students perform tasks related to teaching and to teacher roles. Must be taken before student teaching and must be taken in sequence. Prereq: 3522 and 3523 required Admission to Teacher Education. S/NC. F, W, S.

3531-32-33 Field Experiences in Teaching: Social Foundations (1, 1, 1) For description, see 3521-22-23.

3561 Teaching of Speech and Drama, Grades 7-12 (3) For description, see 3563. Prereq: Admission to Teacher Education. W.

3562 The Teaching of Foreign Languages: Grades 7-12, Part I (3) Beginning course in sequence; methods, lesson planning, peer-teaching, commercial and teacher-made materials for teaching the foreign language. Prereq: and C&I 3563 are required for certification in modern foreign languages and Latin. Prereq: Completion or near completion of foreign language hours for certification required. Admission to Teacher Education. F.

3563 The Teaching of Foreign Languages: Grades 7-12, Part II (3) Second course in sequence; implementation of foreign language evaluation techniques, advanced methods and teacher-made materials in peer-teaching and field settings. This course and Ed. C&I 3562 are required for certification in modern foreign languages and Latin. Prereq: Admission to Teacher Education. W.

3563 History and Philosophy of Afro-American Education (3) (Same as Afro-American Studies 3630.)

3600 Contemporary Issues in Afro-American Education (3) (Same as Afro-American Studies 3640.)

3653 The Teaching of Social Studies, Grades 7-12 (3) Purposes, techniques, materials, and evaluation; directed observation of public schools; preparation of teaching plans and materials. Undergraduate credit only. Prereq: Educ. Psych. 3810 or equivalent, admission to Teacher Education. F, W.

3654 The Teaching of Science, Grades 7-12 (3) For description, see 3653. Prereq: Admission to Teacher Education. F, S.

3657 Teaching Language, Composition, and Speaking, Grades 7-12 (3) For description, see 3653. Both this course and Educ. C&I 3658 are required for certification in English. Prereq: Admission to Teacher Education. W.

3658 Teaching Reading, Literature, and Listening, Grades 7-12 (3) For description, see 3653. Both this course and Educ. C & I 3658 are required for certification in mathematics. Prereq: Admission to Teacher Education.

3720 Teaching Science in the Elementary School (3) Methods and materials, undergraduate credit only. Prereq: Educ. Psych. 3430 or equivalent, admission to Teacher Education. E.

3751 Teaching of Mathematics: Numerical and Algebraic Concepts, Grades 7-12 (3) For description, see Educ. C&I 3563. Both this course and 3563 are required for certification in mathematics. Prereq: Admission to Teacher Education. F.

3752 Teaching Mathematics: Geometry and Analysis, Grades 7-12 (3) For description, see Educ. C&I 3563. Both this course and 3563 are required for certification in mathematics. Prereq: Admission to Teacher Education. W.

3853 Teaching Strategies and Issues in Social Studies Education (Grades 7-12) (3) Problems and issues with practical teaching-learning activities in Social Studies Education. Both this course and Education 3653 are required for certification in Social Studies. Prereq: 3653 and admission to Teacher Education. F, W.

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 pre-student teaching seminars spring quarter. Prereq: full admission to the Teacher Education Program. Undergraduate credit only. May not be repeated for credit.

4090 Special Topics (1-6) Topics to be assigned. May be repeated. Will be offered for letter grade or S/NC.

4091 Independent Study (1-6) Topics to be assigned. May be repeated. Will be offered for letter grade or S/NC.

4092 Supervised Readings (1-6) Topics to be assigned. May be repeated. Will be offered for letter grade or S/NC.

4111 Non-Western Education: Anthropological Approaches (3) (Same as Anthropology 4150.)

4150 School Library Administration (3) (Same as Library and Information Science 4150.)

4210 Curriculum in Elementary School Social Studies (3) Survey of current curricular approaches and trends in elementary school social studies. Prereq: Teaching experience or student teaching.

4215 Elementary School Science (3) Methods and materials used in teaching of science in elementary school. Developmental and diagnostic correction programs. Not open to students with recent course or background in teaching of elementary school science.

4216 Teaching Elementary School Mathematics (3) Methods and materials used in teaching of mathematics 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) Materials and methods used in teaching of elementary school language arts. Development of functional relationships with other curriculum areas, diagnostic processes, and evaluations. Not open to stu-
dents with recent course or background in teaching of elementary school language arts.

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: Supervisors standing.

4280 Orientation to Corrective Practices for Classroom Reading Problems (3) An orientation to the basic practices in diagnosing and correcting reading problems in the regular classroom. The inexperienced or beginning teacher deals with the collection and interpretation of reading behavior information and the prescription of corrective teaching. Prereq: 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. F, SU.

4303 Language Development of Children: Birth-Preadolescence (3) Indepth view of language development from birth through preadolescence; application of process of language development to instructional programs for early and middle childhood. F, S, SU.

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. F, S, SU.

4400 Problems in Improvement of Instruction (1-3) Special conferences, workshops, or in-service programs designed for improvement of instruction. May be repeated. Maximum credit 9 hours. S/NC.

4410 Educational Sociology (3) (Same as Sociology 4410) F, S.

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 in areas other than this. Application must be filed with student teaching office at least one quarter prior to registration for practicum. Prereq: 3010-20-30, 3260-70-80, 3350, 3720; Educ. Psych.: 3430; Library Service 3510; minimum grade point average of 2.0. Undergraduate credit only. S/NC. F, W, S.

4450 Introduction to Adult Education (3) Adult education as a profession including diversity and scope of clientele and programs.

4554-55-56 Student Leadership Workshops (1,1,1) Small group and individualized experiences to develop leadership skills and in leadership roles. Sections are designed for resident assistants, student government leaders, student activities, and other student organizations. Prereq: Consent of instructor. S/NC only.

GRADUATE Consult the Graduate Catalog for listing of graduate level courses.

Higher Education (267)


Assistant Professor: P. A. Matuszek, Ph.D. Texas.

GRADUATE Consult the Graduate Catalog for listing of graduate level courses.

Educational Leadership

Educational Administration and Supervision (292)

GRADUATE Consult the Graduate Catalog for listing of graduate level courses.

Educational Counseling and Psychology (311)
2230 Career Development (3) Vocational opportunities and aspirations, including self-appraisal, career planning, decision-making, skill development, and vocational exploration. Prereq: F, W.

2299 Developmental Laboratory (1) Repeatable to three credit hours. Specialized laboratory experiences in the measurement and interpretation of academic, personal, or career development. E.

3000 Field Experience (1) Field experiences in working with children and youth and their teachers. Students will perform various teaching tasks and be given opportunities to act in teaching roles. May be repeated for a total of 6 hours. E.

3100 Learning Principles (4) The acquisition, retention, and transfer of information and skills, and major steps in problem solving and reasoning. E.

3110 Classroom Behavior Management (3) Understanding of and skill in use of multiple contemporary techniques and approaches in achieving effective classroom discipline and management. Prereq: Psychology 2500, Ed. Psych. 3100 or equivalent. E.

3430 Child Study (3) Child learning and development: study of individual children, ages 5-12. Coreq: either Ed. Psych. 2000 or a 2 hr./week field experience. Prereq: Psychology 2500, Ed. Psych. 3100 or equivalent. E.

3550 Child Psychology (3) (Same as Psychology 3550.)

3810 Adolescent Psychology (3) Physical, emotional, intellectual, social, career, and ethical dimensions of adolescent development; major emphasis given to effective communication with adolescents within the educational setting. Prereq: Psychology 2500, Ed. Psych. 3100 or equivalent. E.

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 prestudent teaching seminars spring quarter. Prereq: full use of multiple contemporary techniques and approaches in achieving effective classroom discipline and management. Prereq: Psychology 2500, Ed. Psych. 3100 or equivalent. E.

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 understanding of and skill in use of multiple contemporary techniques and approaches in achieving effective classroom discipline and management. Prereq: Psychology 2500, Ed. Psych. 3100 or equivalent. E.

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 personality assessment instruments. F, S, SU.

4200 Self-Management for Personal and Professional Development (3) Self-management applications in career, social, emotional and physical development. Includes both theoretical and experimental activities. Prereq: An introductory course in psychology or the consent of the instructor. W, SU.

4350-60-70 Special Topics and Problems (1-8, 1-8, 1-1) Only offered for letter grade or S/NC and may be repeated. E.

4440 General Evaluation Procedures for Public Schools (3) Prereq: 2430 or equivalent. A.

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 leaders, student activities, and other student organizations. Prereq: Consent of instructor. S/N/C. E.

4640 Standardized Testing (3) Use and interpretation of standardized group instruments in assessment of intelligence, aptitude, achievement, vocational interests and personality adjustment. F, W, SU.

4650 The Construction of Classroom Tests (3) Concerned with teacher-made classroom tests: instructional objectives, principles of test construction, item analysis, evaluating a test's reliability and validity, interpretation of test scores, relationship between testing and grading. SU.

4760 Advanced Child Study (3) Prereq: 3430 or 3810 or consent of instructor. F, S, SU.

4800 Psychology of the Disadvantaged Child (3) Significant behavioral differences and causes; appropriate intervention approaches. E.

4820 Psychology of the Inner-City School Child (3) Experiences in the teaching of children who are disadvantaged. E.

GRADUATE Consult the Graduate Catalog for listing of graduate level courses.

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:
- B. C. Wallace (Chairperson), Ed.D. Colorado State College

Associate Professors:
- 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. E.

4010-20-30 Problems in Safety (1-3, 1-3, 1-) Individual identification and study of current problems in safety. E.

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. E.

4412 Cardiopulmonary Resuscitation (2) (Same as School Health 4412.) F, W, S.


4430 Sports Safety (5) Accident prevention and injury control in sports activities; philosophy of sports safety; human response to and their interactions in sports injury and their control; risk-taking and decision solution strategies; and contributions of sports science to safety. 3 hours of lecture and 2 hours of lab. S.

4720 Workshop in Safety (3-6) Deals with special safety education problems. For advanced undergraduate students, graduate students, teachers, supervisors, and administrators. May be repeated for credit.

Graduate Consult the Graduate Catalog for listing of graduate level courses.

Health Education (449)

1110 Principles of Personal Health and Wellness (3) To develop the ability to approach health scientifically and to develop confidence in judgments affecting personal health and wellness. E.

2040 Seminar in Human Sexuality (2) Problems and responsibilities of being male and female. S/N/C. E.

2050 Alcohol/Drugs and the College Student (2) Study of problems related to use and abuse of substances potentially harmful to health and safety. Covers alcohol, drugs, tobacco and other substances. S/N/C. E.

3000 Foundation of Health Science (3) In-depth study of content areas relating to personal health/wellness and contemporary health problems, i.e., mood modifying products, consumer health, international health, personal health practices, reciprocal relationships involving man, disease, and environment. F, S, SU.

3219 First Aid and Emergency Care (4) Theory and practice of first aid and emergency care, safety education for medical self-help. Course leads to Red Cross Certification in Advanced First Aid and Emergency Care. (Applicant must be at least 18 years of age for certification.) E.

3410 Health Curriculum Construction and Instruction (3) Principles of health curriculum construction and study of innovative K-12 health curricula. S.

3425 School Health Services (3) Development, maintenance, and protection of health of students including examination, screening, special services, communicable disease control, emergency care, and school health records. S.

3510 The School in Community Health (3) Role of teacher in community health education; school's responsibility in promoting healthful living and the place of existing media and agencies in program. Not open to health and physical education majors. E.

3610 Methods in Elementary Health Instruction (3) Preparation and presentation of health topics. Teaching method is emphasized and student participation stressed. Required for elementary teachers. Prereq: 1110 or 3510 or Nutrition and Food Sciences 1130. E.

3620 Sex Education as it Relates to Human Sexuality (3) Exploration of the science of human sexuality. Emphasis on the biological, psychological, methodology and materials in sex education. F, S.

3650 Methods in Secondary Health Instruction (3) Preparation and presentation of health topics. Teaching method is emphasized and student participation is stressed. Prereq: 3410. W.

4100 Pre-Student Teaching Seminar (1) Orient student teachers to the off-campus centers and the student teaching program; describes the objectives of and criteria to study of one's self based on a battery of personality assessment instruments. F.

4412 Cardiopulmonary Resuscitation (2) (Same as School Health 4412.) F, W, S.
4120 Alcoholicism and Alcohol Education (3) Explores problems of alcoholism. Emphasis on factors which make alcoholism a serious health and safety problem. Various types of instructional/educational and intervention programs. F, W, S.

4130 Suicide and Suicide Intervention (3) Explores problems of suicide. Emphasis on factors which make suicide a serious health problem. Various types of instructional/educational and intervention programs. S.

4140 Death, Dying and Bereavement (3) Exploration of theories of death and dying. Education and other programs to mitigate the trauma of death and dying. F, W, S.

4141 Instructional/Edual and Emergency Care (3) Designed to teach First Aid. Satisfactory completion qualifies one for American National Red Cross Certification as an Advanced First Aid and Emergency Care Instructor. Applicant must be at least 21 years of age for certification. Prereq: 3210 or valid Advanced First Aid and Emergency Care Certificate.

4142 Cardiopulmonary Resuscitation (2) Theory and Skills to present basic cardiac life support following cardiac arrest due to such conditions as heart attack, drowning, electrocution, suffocation, poisoning, ingestion of certain substances, and vehicular and other accidents. Educational and preventive aspects of controlling cardiovascular disease. (Same as Safety 4412.) F, W, S.

4200 Drug Abuse Dissection (3) Drug abuse problem and suspected causes; pharmacology of drugs and effects on society and methods of drug abuse education.

4310 Women's Health II (3) Study of factors influencing women's health and women as consumers of the nation's health service delivery systems. E.

4500-10 Field Practice in Health Education (3-5, 3-6, 3-8) Off-campus health education internship or field practice in educational or other agency with qualified professional. E.

4710 Special Topics (1-6) For advanced students, teachers, school administrators, nurses, and other personnel. Topics will include: publication, lectures, demonstrations, films, field trips, and supervised research in special health problems. May be repeated for credit.

4810 Directed Independent Studies (1-3) Individual investigation and study of a health or health education problem/issue. Permission of instructor required before registration. May be repeated. E.

GRADUATE

Consult the Graduate Catalog for listing of graduate level courses.

Physical Education (784)

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. Koza, Ph.D. Marquette; L. M. Lay, Ph.D. Florida State; W. P. Lienh, Ph.D. Iowa; M. M. Phillips, Ph.D. Iowa; H. B. Watson (Emeritus), Ph.D. Michigan; H. G. Welsh, Ph.D. Florida.

Associate Professors:

Instructors:

Lecturers:

1000 Orientation to Physical Education (1) Special emphasis on theoretical and practical aspects of physical education. Letter grade. F, W, S.

1022 Physical Education Major: Basketball (2) The introduction and development of basic fundamental skills, general rules, and strategy related to the game of basketball with particular emphasis on acquisition of skill. W.

1032 Physical Education Major: Tennis (2) The introduction and development of skills, general rules, and strategy related to the game of tennis with particular emphasis on acquisition of skill. F, S.

1042 Physical Education Major: Gymnastics I (2) Development of skills in tumbling and on selected men's and women's gymnastics' apparatus. Tumbling skills will include front, backward, and balance skills. Apparatus will include vaulting, balance beam, and pommel horse. Special emphasis will be placed on safety and progression. F, W.

1052 Physical Education Major: Folk and Square Dance (2) The introduction to basic folk and square dance steps, patterns, and designs. Emphasis on skill acquisition, principles, terminology, and etiquette. W.

1062 Physical Education Major: Track & Field (2) The introduction and development of basic fundamental skills and knowledge in track and field with particular emphasis on development of skill. F, S.

1500 Field Experience I (1) Student observation in selected elementary, middle and secondary public school physical education programs.

2012 Physical Education Major: Soccer (2) The introduction and development of basic fundamental skills, general rules, and strategy, related to the game of soccer with particular emphasis on acquisition of skills. F, S.

2022 Physical Education Major: Volleyball (2) The introduction and development of basic fundamental skills, general rules, and strategy, related to the game of volleyball with particular emphasis on acquisition of skill. W.

2032 Physical Education Major: Golf (2) The introduction and development of basic fundamental skills, general rules, and strategy, related to the game of golf with particular emphasis on acquisition of skill. F, S.

2040 New Repertory Dance Company (2) Preparation and presentation of public performances. May be repeated. Maximum credit 4 hours. Prereq: Consent of instructor. F, W.

2042 Physical Education Major: Gymnastics II (2) Development of skills in tumbling and on selected men's and women's gymnastics apparatus. Tumbling skills will include twisting skills, kips, and combinations of previous skills. Apparatus will include uneven bars, horizontal bar, parallel bars, and still rings. Prereq: 1042. F, W.

2050 New Repertory Dance Company (2) Preparation and presentation of public performances. May be repeated. Maximum credit 4 hours. Prereq: 2040 or consent of instructor. F, W.

2052 Physical Education Major: Ballroom Dance (2) The introduction to ballroom dance steps, patterns, and designs. Emphasis on skill acquisition, principles, terminology, and etiquette. W.

2060 New Repertory Dance Company (2) Preparation and presentation of public performances. May be repeated. Maximum credit 4 hours. Prereq: 2050 or consent of instructor. F, W.

2062 Physical Education Major: Football (2) The introduction and development of basic fundamental skills, general rules, and strategy related to the game of football with particular emphasis on acquisition of skill. F.

2070 Orientation in Dance—Appreciation (3) History, aesthetic principles, and current trends in dance. A.

2072 Physical Education Major: Softball (2) The introduction and development of basic fundamental skills, general rules, and strategy, related to the game of slow pitch softball with particular emphasis on acquisition of skill. S.

2500 Secondary Field Experience II (2) Observation, teaching and leadership experience in physical education classes. Emphasis will be placed on individual and small group teaching experiences. Prereq: 1500 or at least sophomore standing.

2600 Human Motor Behavior (3) Current theories and principles explaining motor behavior; psychological factors related to and/or affecting motor skill acquisition and performance. Prereq: At least sophomore standing.

2850 Sport in American Society (3) Introductory course for undergraduates on the study of sport in American society from a sociological perspective.

3000 Administration of Athletics (2) Conduct of programs of athletic sports in high schools and colleges. W.

3019 Elementary Modern Technique (2) Analytical and practical study of modern dance techniques. May be repeated. Maximum credit 6 hours. F, W, S.

3020 Intermediate Modern Technique (2) Theoretical, technical, and improvisational study of modern dance. May be repeated. Maximum credit 6 hrs. Prereq: 3010. Available to dance majors and minors or with consent of instructor. F, W, S.

3030 Intermediate/Advanced Modern Technique (2) Emphasis on various styles and techniques. May be repeated. Maximum credit 6 hrs. Prereq: 3020. Available to dance majors and minors or with consent of instructor. F, W, S.

3040 Elementary Jazz Techniques (2) Instruction and practice in styles and techniques of jazz. May be repeated. Maximum credit 6 hrs. F, W.

3041 Intermediate Jazz Dance Technique (2) Intermediate instruction in Jazz Dance Technique with emphasis on lyrical and percussive styles. Prereq: 3040 or consent of instructor. F, W, S.

3060 Beginning Dance Composition (2) Experience in creative forms of dance. Prereq: 3010. F.

3061 Dance Composition II (2) Further development of solo and duo compositional skills with particular emphasis on form; content and use of music. Prereq: 3060. W.

3062 Dance Composition III (2) Study of choreography for small groups. Exploration of costumes, props, stage space, and alternative environments. Prereq: 3061. S.

3070 Elementary Ballet Techniques (2) Practical and analytical study of classical ballet technique. May be repeated. Maximum credit 6 hrs. F, W, S.

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. F, W, S.

3110 Coaching of Football (2) The theoretical and practical application of various coaching techniques in football for the prospective secondary coach. Topics will include the analysis and selection of appropriate game plans, specific conditioning and training programs, practice organization, player evaluation,
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>3130</td>
<td>Coaching of Basketball (2)</td>
<td>Individual and team fundamentals for the high school coach; attention given to conditioning, schedule making, and other game management arrangements. Prereq: Consent of instructor. W.</td>
</tr>
<tr>
<td>3130</td>
<td>Coaching of Track and Field (2)</td>
<td>Examination of current coaching methods and training techniques for selected track and field events, including experience and working at track and field meets and practices. Prereq: 1062 or consent of instructor. S.</td>
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<tr>
<td>3190</td>
<td>Coaching of Gymnastics (2)</td>
<td>Techniques used in the coaching and judging of men's and women's gymnastics. Additional emphasis will be placed on safety and spotting of selected gymnastics' skills. Prereq: Consent of instructor. A.</td>
</tr>
<tr>
<td>3200</td>
<td>Coaching of Baseball/Sofball (2)</td>
<td>Theoretical and practical application of various coaching techniques in baseball/softball for the prospective sophomore-college coach. Topics will include the analysis and selection of appropriate game plans, specific conditioning and training programs, practice organization, player evaluation, scouting, individual and team offensive and defensive strategies. Prereq: 2072 or consent of instructor. F.</td>
</tr>
<tr>
<td>3210</td>
<td>World History of Sport and Physical Education (3)</td>
<td>An introductory survey of the influence to past societies and cultures from prehistory through the twentieth century civilization. Prereq: At least junior standing. A.</td>
</tr>
<tr>
<td>3250</td>
<td>Athletic Training Techniques (3)</td>
<td>Theory and practice in the prevention and care of basic athletic injuries. S.</td>
</tr>
<tr>
<td>3285</td>
<td>Practicum in Pre-School Aquatics (2)</td>
<td>Planning and teaching aquatic experiences to 3- to 5-year-old children. Prereq: Intermediate level swimming ability. A/F or S/NCR. W, S.</td>
</tr>
<tr>
<td>3300</td>
<td>Tap Dance (2)</td>
<td>Instructions, practice, and student study in tap dance. Prereq: 1050 and 2052; 6 hrs. Practical work, including student teaching, supplemented by seminar credit. May be repeated. Maximum credit 6 hrs. F, W, S.</td>
</tr>
<tr>
<td>3330</td>
<td>Applied Anatomy (3)</td>
<td>Bones, ligaments and muscles involved in human movement. Prereq: At least junior standing.</td>
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<tr>
<td>3350</td>
<td>Introduction to Movement Education (3)</td>
<td>Planning and teaching by themes with application to dance, gymnastics, and games for children. Prereq: Admision to Teacher Education.</td>
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<tr>
<td>3450</td>
<td>Physical Education in the Elementary School (3)</td>
<td>Movement experiences appropriate for elementary school children; planning and teaching a developmental program. E.</td>
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<tr>
<td>3460</td>
<td>Educational Dance for Children (3)</td>
<td>The theme approach to dance forms for children. Prereq: 3350 or consent of instructor.</td>
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<tr>
<td>3470</td>
<td>Educational Games for Children (3)</td>
<td>The theme approach to game forms for children. Prereq: 3350 or consent of instructor.</td>
</tr>
<tr>
<td>3480</td>
<td>Educational Gymnastics for Children (3)</td>
<td>The theme approach to the development of physical education for K-6. A.</td>
</tr>
<tr>
<td>3500</td>
<td>Secondary Field Experience III (2)</td>
<td>The design and implementation of learning units appropriate to the teaching of secondary physical education. Prereq: 2300 and all P.E. Major activity courses, and admission to Teacher Education.</td>
</tr>
<tr>
<td>3550</td>
<td>Social-Psychological Aspects of Sport and Physical Education (3)</td>
<td>An overview of major topics dealing with social psychological influences which affect behavior in a physical education and/or sport environment. Prereq: At least junior standing.</td>
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<tr>
<td>3560</td>
<td>Human Growth and Motor Development (3)</td>
<td>Structural and functional changes in man from birth to old age; effects of disease and trauma; and peripheral changes in physical performance and skill development. F, S.</td>
</tr>
<tr>
<td>3570</td>
<td>Developmental Trends in Movement Performance of Children (2)</td>
<td>Motion characteristic of basic movement patterns evolving in children with an emphasis upon understanding movement performance as a product of interaction of biophysical percepto-cognitive, and psycho-social variables. Prereq: Approval of instructor.</td>
</tr>
<tr>
<td>3720</td>
<td>Philosophy of Sport and Physical Education (3)</td>
<td>Principles of philosophy of physical education and sport; specific emphasis on examination of metaphysical, epistemological and sociological status of physical education and sport. Prereq: At least junior standing.</td>
</tr>
<tr>
<td>3800</td>
<td>Special Topics (1-3)</td>
<td>Study in selected disciplinary or professional areas of physical education. May be repeated.</td>
</tr>
<tr>
<td>3910</td>
<td>Psychology of Coaching (3)</td>
<td>An analysis of the non-physical influences upon athletic performance. Emphasis on practical implications and applications to coaching. Prereq: 3550 or consent of instructor. F.</td>
</tr>
<tr>
<td>4000</td>
<td>Intermediate Advanced Ballet Technique (2)</td>
<td>Emphasis on styles and methods of intermediate/advanced classical ballet techniques, intermediate/advanced pointe work, batterie, and petit allegro. Prereq: 3075. Available to dance majors or with consent of instructor. May be repeated. Maximum credit 6 hrs. F, W, S.</td>
</tr>
<tr>
<td>4005</td>
<td>Advanced Ballet Technique (2)</td>
<td>Emphasis on styles and methods of advanced classical ballet technique, including allegro, changement, adage, pirouette, and advanced pointe work. Prereq: 4000. Available to dance majors and minors or with consent of instructor. May be repeated. Maximum credit 6 hrs. F, W, S.</td>
</tr>
<tr>
<td>4010</td>
<td>Advanced Modern Technique (2)</td>
<td>Development, integration, and synthesis of previous dance vocabulary; emphasis on advanced practice and principles. May be repeated. Maximum credit 6 hours. F, W, S.</td>
</tr>
<tr>
<td>4020</td>
<td>Practicum in Dance Production (2)</td>
<td>Prereq: Consent of instructor. A.</td>
</tr>
<tr>
<td>4050</td>
<td>Rhythmic Analysis (3)</td>
<td>The basic nature and principles of music, rhythm, and rhythmic notation with emphasis on theory and practical application and relationship. Prereq: Consent of instructor. Senior standing or graduate status is required for graduate credit. A.</td>
</tr>
<tr>
<td>4060</td>
<td>Advanced Composition (4)</td>
<td>Application of compositional, production, and administrative skills culminating in the presentation of two complete choreographic works. Prereq: 3920, 4200.</td>
</tr>
<tr>
<td>4080</td>
<td>History of Dance I (1)</td>
<td>A survey of the dance of various societies and cultures from pre-history through the nineteenth century. Senior standing or graduate status is required for graduate credit. There is a different level of performance expected of those registered for graduate credit. A.</td>
</tr>
<tr>
<td>4090</td>
<td>History of Dance II (3)</td>
<td>A survey of the development of dance in the theatre, recreation, and education during the twentieth and twenty-first centuries. Prereq: Consent of instructor. Senior standing or graduate status is required for graduate credit. There is a different level of performance expected of those registered for graduate credit. A.</td>
</tr>
<tr>
<td>4100</td>
<td>Pre-Student Teaching Seminar (1)</td>
<td>Orient students 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/NCR only. (Same as Ed 4100, 4101, Ed 4100, Music Ed 4100, Ed. &amp; Counseling Psych. Ed 4101, 4112, Public Health 4100, and Bus. Ed 4100.) F, W, S.</td>
</tr>
<tr>
<td>4110</td>
<td>Adapted Physical Education (3)</td>
<td>Classification of atypical students who require modified programs in physical education; activities and class organization suitable for required or special physical education classes. Prereq: At least junior standing. F, W, S.</td>
</tr>
<tr>
<td>4115</td>
<td>Adapted Physical Education Laboratory (1-2)</td>
<td>Practical work, including student teaching, supplemented by seminar credit. Prereq: 3550. F, W, S.</td>
</tr>
<tr>
<td>4140</td>
<td>Measurement and Evaluation in Physical Education (3)</td>
<td>Relationship of measurement and evaluation in physical education. Administration and critique of appropriate measures of physical fitness, sports skills, and knowledge. Prereq: At least junior standing. W, S.</td>
</tr>
<tr>
<td>4150</td>
<td>The Teaching of Creative Dance (3)</td>
<td>Theory, methods, materials, and practical experience in the presentation and integration of creative dance in grades K-6. A.</td>
</tr>
<tr>
<td>4160</td>
<td>Athletic Coaching Field Experience (2)</td>
<td>Practical experience in coaching and related responsibilities. Must be repeated. Maximum credit 4 hours. Prereq: Approval of instructor. F, W, S.</td>
</tr>
<tr>
<td>4170</td>
<td>Physical Activity and Fitness (3)</td>
<td>Theoretical knowledge and practical experience in principles and methods of activities relating to health related aspects of fitness. 2 hrs. and 1 lab. Prereq: At least junior standing. F.</td>
</tr>
<tr>
<td>4200</td>
<td>Motor Behavior Teaching Methods (3)</td>
<td>Application of theory and styles of teaching the teacher/learning environment: planning, presenting, and evaluating lessons concerning knowledge, strategies, and skills for physical activity, games, and sport. Prereq: 3850, minimum of 16 hrs. F, S. Major activity courses and admission to Teacher Education.</td>
</tr>
<tr>
<td>4220</td>
<td>Applied Kinesiology (3)</td>
<td>Analysis of movement and muscle group involvement; application of the laws of physics to human movement, exercise programs for specific muscle group involvement. Prereq: 3320, Physics 1450, 1310 or consent of instructor.</td>
</tr>
<tr>
<td>4230</td>
<td>Program Planning in Physical Education (3)</td>
<td>Curriculum building, course construction, and lesson planning for public schools and colleges. Prereq: 4200.</td>
</tr>
<tr>
<td>4240</td>
<td>Designing and Implementing Movement Programs for Children (3)</td>
<td>Approaches to the design and implementation of preschool, elementary, and middle school movement programs. Prereq: Admission to Teacher Education. Prereq: 3520.</td>
</tr>
<tr>
<td>4260</td>
<td>Practicum for Physical Education Majors (1-10)</td>
<td>Experiences in the community to support and clarify career goals. Prereq: Consent of instructor.</td>
</tr>
<tr>
<td>4300</td>
<td>Intermediate Tap Technique (2)</td>
<td>Instruction and practice in intermediate level tap skills and techniques. Prereq: 3350. F, W, S.</td>
</tr>
<tr>
<td>4310</td>
<td>Directed Independent Studies (1-3)</td>
<td>Independent study in a specialized area within physical education. Prereq: Consent of advisor. May be repeated. E.</td>
</tr>
<tr>
<td>4360</td>
<td>Techniques of Games Forms (2)</td>
<td>Study of non-traditional games which includes personal skill development with application to teaching techniques. Prereq: At least junior standing.</td>
</tr>
<tr>
<td>4385</td>
<td>Techniques of Folk, Square, and Ballroom Dance (2)</td>
<td>Development of intermediate to advanced level of skill in folk, square, and ballroom dance with application to techniques of teaching. Prereq: 1052 and 2052; prereq. or coreq. 4200.</td>
</tr>
<tr>
<td>4370</td>
<td>Techniques of Gymnastics (2)</td>
<td>Development of skills required for the beginner to advanced level of skill in gymnastics for both male and women's apparatus and tumbling. Emphasis will be placed on spotting and teaching techniques. Prereq: 1052 and 4112; prereq. or coreq. 4200.</td>
</tr>
<tr>
<td>4375</td>
<td>Techniques of Track and Field (2)</td>
<td>Development of intermediate to advanced level of skill in track and field with application to techniques of teaching. Prereq: 1052; prereq. or coreq. 4200.</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
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</tr>
<tr>
<td>2727</td>
<td>Flag Football (2)</td>
<td>Development of intermediate to advanced level of skill in mixed and flag football with practical application of teaching techniques. Prereq: 1032; prereq. or coreq: 4200.</td>
</tr>
<tr>
<td>2712</td>
<td>Ballet Intermediate (2)</td>
<td>Provides the foundation for intermediate-level ballet technique. Prereq: 1022; prereq. or coreq: 4200.</td>
</tr>
<tr>
<td>2711</td>
<td>Ballet Elementary (2)</td>
<td>Provides the foundation for elementary-level ballet technique. Prereq: 1022; prereq. or coreq: 4200.</td>
</tr>
<tr>
<td>2707</td>
<td>Badminton Elementary (2)</td>
<td>Provides the foundation for elementary-level badminton technique. Prereq: 1022; prereq. or coreq: 4200.</td>
</tr>
<tr>
<td>2784</td>
<td>Physical Fitness: Exercise and Weight Control (2)</td>
<td>Focuses on developing physical fitness and weight control. Prereq: 1032; prereq. or coreq: 4200.</td>
</tr>
<tr>
<td>2728</td>
<td>Folk and Square Dance (2)</td>
<td>Focuses on folk and square dance techniques. Prereq: 1032; prereq. or coreq: 4200.</td>
</tr>
<tr>
<td>2730</td>
<td>Physical Fitness: Conditioning (2)</td>
<td>Focuses on physical fitness conditioning. Prereq: 1032; prereq. or coreq: 4200.</td>
</tr>
</tbody>
</table>

**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.

**GRADUATE**

Consult the Graduate Catalog for listing of graduate level courses.

**Public Health (639)**

**Professors:**
C. B. Hamilton (Chairperson), Dr. P.H. Oklahoma; J. Gorski, Dr. P.H. U.C.L.A.; B. C. Wallace, Ed.D. Colorado State.

**Associate Professor:**
R. J. Pursley, Ph.D. Iowa.

**Assistant Professors:**

**3310 Communicable and Noncommunicable Diseases (3)**
Modern concepts of diseases; etiology of communicable and chronic disease problems including prevention and control. Prereq: One year of biological science and one course in bacteriology, F, W, S.

**3320 Sanitation (3)**
History of sanitary awakening; disease-producing relationships and controls of water, sewage, refuse, milk, meat 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 biological science, one course in microbiology, 2 hrs. and 1 lab. F, S.

**3330 Introduction to Public Health (3)**
Philosophy, organization, and functions of federal, state, and local official and voluntary public health agencies. Includes period field trips.

**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 pre-student teaching seminars. Prereq: 4200. F. S./NC.

**4210 Urban and Industrial Health (3)**
Focuses on the health needs 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. S.

**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.)

**4700-10-20 Field Practice in Public Health (3, 3, 3)**
Field practice in public health under supervision of public health profession. S./NC. E.

**4730 Workshop in Public Health Education (3-6)**
For teachers, 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.

**4740 Public Health Fieldwork (6)**
Field practice in public health under the supervision of public health profession. S./NC. E.

**4840-50-60 Problems in Public Health Education (1, 1, 1)**
Individual identification and study of current problems in public health education. Extensive reading of literature required.

**GRADUATE**

Consult the Graduate Catalog for listing of graduate level courses.
Recreation (853)

Professor: M. L. Peters (Chairperson), Ph.D. Illinois.

Associate Professor: K. L. Krick, Re.D. Indiana.

Assistant Professor: M. D. Blanton, 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's credit requires 25 hours of work in field agency. For recreation students only. Must be taken in sequence. E.

1100 Orientation to Recreation Profession (3) Overview of types, functions, and interrelationships of delivery systems for recreation and park services. F, W.

3100 Recreation Leadership Procedures (3) Principles and practice of recreation leadership; techniques 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. F.

3140 Philosophical Foundations of Recreation (3) Examination of recreation as personal experience; theories of play; philosophies of leisure and relationships to society, economy, ecology, health, government, culture, and self-realization; history of recreation movement. J.

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. S.

3220 Organization, Supervision, and Management of Recreation Programs (3) Management, organization and administration of recreation programs and facilities. Prereq: 2000 and 3200. S.

3301 Outdoor Recreation Skills and Techniques I (3) Fundamentals necessary for safe participation in outdoor recreation activities such as hiking, snowshoeing, cross-country skiing, orienteering, and nature interpretation without disruption of natural environment. Prereq: Consent of instructor. F, A.

3710 Camp Counseling (3) History and philosophy of camping movement, counselor leadership and program skills and outdoor living skills. S.

3880 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. F, W.


4100 Recreation Administration (3) Introduction to recreation administration, including planning, personnel, areas and facilities, program services, finances, and public relations. Prereq: 3140, 3200, 3880 or consent of instructor. F, S.

4200 Survey of Recreation for Special Populations (3) Responsibility of recreation profession to minority groups whose leisure opportunities and needs may require special servicing. Prereq: 3140, 3200, 3880 or consent of instructor. F, S.

4300 Camp Administration (3) Program planning and organization, personnel management, camp site development and maintenance and camp operation for administrators and supervisors of organized camps. W.

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 to a maximum of 9 hours with consent of the division. Prereq: Consent of instructor. E.

GRADUATE

Consult the Graduate Catalog for listing of graduate level courses.

Special Education and Rehabilitation (933)


Instructors: S. M. Benner, Ed.D Columbia; K. H. Kopf, Ph.D. Peabody; S. W. Mulkey, Ph.D. Florida State.

Lecturer: O. E. Reece, B.S. Memphis State.

It is possible to plan a program which will lead to certification in Speech and Hearing. For planning a program, the student must consult with an advisor in the chosen area. Certification is available at the graduate level. NOTE: Only grades of C and above in the major area of study will be credited for certification and graduation.

Speech and Hearing: 3310, 3330, 3710, 4030, 4040, 4130, 4520, 4530, 4534, 4400, 4420, 4720, 4930. Other courses from Audiology and Speech Pathology: 3010, 3050, 3065, 3200, 4610, 4650.

2120 Field Experience (3) Students observe, tutor, and perform teacher-related tasks in non-special education programs. S/NC. W, S.

3310 Articulation Disorders (4) Same as Audiology and Speech Pathology 3310.

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. E.

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, F, S.

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. W.

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: Courses required for Tennessee certification in Special Education. F, W, S.

4110 The Nature and Concept of Mental Retardation (3) Identification, description, and study. W, S.

4120 Education of the Mentally Retarded Child (3) Philosophy and rationale underlying the teaching and guiding of the mentally retarded. Methods and materials in special and regular classes. Prereq. or coreq: 4110 and admission to Teacher Education. F, W, S.

4130 Education of the Brain-Injured Child (3) Nature of brain-injured child; skills for identifying educational, physical, and emotional characteristics; special educational techniques. Prereq: Admission to Teacher Education.

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. Prereq. Coreq. 3333 or consent of instructor and admission to Teacher Education. F, W.

4160 Education of Partially Sighted Children (3) Curricular adjustments and materials; home visits for parents; vocational, 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.) F.

4200 Practicum in Speech Development of Hearing Impaired (3) Application of theories and techniques of speech development and improvement for hearing impaired children. Prereq: 4190 and consent of instructor. (Same as Audiology and Speech Pathology 4200.) W.

4210 Language Development of Hearing Impaired (3) Systems by which formal language is presented. Prereq: Admission to Teacher Education. (Same as Audiology and Speech Pathology 4210.) F.

4220 Language Development for the Hearing Impaired (3) Techniques of teaching the deaf who speak a natural language is presented. Prereq: 4210 or consent of instructor and admission to Teacher Education. (Same as Audiology and Speech Pathology 4220.) F.

4230 Communication Processes for the Hearing Impaired (3) Various communicative skills required by hearing impaired person; speech and language development; auditory training, speech reading, manual language, and its relation to other forms of communication. Observation practicum. (Student must acquire a degree of proficiency in use of manual language.) Prereq: Consent of instructor. E.

4231 Communication Processes for the Hearing Impaired II (3) Intermediate courses in manual communications 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 and 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; relations of audiological services to medical and other rehabilitative disciplines. Observations and practicum. F, S.

4250 Introduction to the Psychology and Education of the Hearing Impaired (3) Offered for those 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-adjust-
curricula in teaching reading. Prerequisite: Admission to Secondary Schools for the Hearing Impaired (3) Adaptation, and learning of the deaf. Survey of profession.

4610 Nature and Characteristics of Learning and Education. W, S.

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. Prerequisite: 4610.

4630 Practicum in Residential Settings Serving Children with Learning and Behavior Problems (6) Academic tutoring in a teacher/aide capacity in regular classrooms. Particular emphasis on individualizing instruction for learning and behavior problem children within the regular classroom setting. Discussion and evaluation of relevant methods and materials unique to each teaching situation. Prerequisites: 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; related services; theoretical considerations and methods of evaluating exceptional students; introduces basic statistical concepts relative to norm- and criterion-referenced testing. Prerequisite: Sp. Ed. & Rheum. 3333 or consent of instructor and admission to Teacher Education. W, S.

4810 Student Teaching Mental Retardation (3) Prerequisite: Major in education of mental retardation. S/NC.

4811 Student Teaching Mental Retardation (9) Prerequisite: Major in education of mental retardation. S/NC.

4840 Educational Problems of the Cerebral Palsey Child at Home and School (3) Physical, social, and educational needs of cerebral palsey patients; related education 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 resources.

4860 Student Teaching with Hearing Impaired Children (9) Supervised practicum with preschool, day school, and residential pupils. S/NC, F, W, S.

4871 Practicum with Hearing Impaired Children (6) S/NC. F, W, S.

4880 Student Teaching in Special Education (1-6) Application for student teaching must be filed not later than January 1 of the academic year preceding the actual experience. Prerequisite: 4110, 4120, 4130, 4150, 4351, 4356, 4740. S/NC, F, W, S.

4881 Student Teaching in Special Education (1-6) Application for student teaching must be filed not later than January 1 of the academic year preceding the actual experience. Prerequisite: 4110, 4120, 4130, 4150, 4351, 4356, 4740. S/NC, F, W, S.

4882 Student Teaching in Special Education (1-4) Application for student teaching must be filed not later than January 1 of the academic year preceding the actual experience. Prerequisite: 4110, 4120, 4130, 4150, 4351, 4356, 4740. S/NC, F, W, S.

4921 Student Teaching in Crippling and Special Health Conditions (3-15) Observation and supervised practicum in home, hospital, and classroom. S/NC.

4922 Student Teaching of the Educable Mentally Retarded (3) Observation and supervised practicum. S/NC.

4924 Student Teaching of the Emotionally Disturbed (3-9) Individual tutoring and classroom observation and teaching. Prerequisite: or consent of instructor. C&I 4720 or 4620. S/NC.

4930 Aural Rehabilitation: Speechreading and Auditory Training (3) (Same as Audiology and Speech Pathology 4930.)

4940 Introduction to the Verbo-Tonal System (4) (Same as Audiology and Speech Pathology 4940.)

GRADUATE Consult the Graduate Catalog for listing of graduate level courses.

Technological and Adult Education

Vocational-Technical Education (988)

Professors: J. I. Matthews (Head), Ph.D. Arizona State; R. Woodin (Emeritus), Ph.D. Ohio State; W. A. Cameron, Ph.D. Ohio State; C. A. Campbell, Ed.D.


Assistant Professors: R. H. Pierce, Ph.D. Ohio State; T. L. Powell, M.S. Oklahoma.

GENERAL

2010-20-30 Field Experience in Vocational Education (1, 1, 1) Field experience in public school programs in agriculture, business, distributive, trades and industries, and industrial arts education. S/NC only.

3000 Introduction to Vocational Education (1) Introductory and exploratory experiences concerned with teaching careers in all areas of vocational education. Includes visits within a vocational setting.

4010 Development and Utilization of Advisory Committees (3) Philosophy and rationale for use of craft advisory committees. Their selection, organization, implementation, and utilization.

4100 Special Topics (1-3) Topics to be assigned. May be repeated a maximum of 9 hours.

4140 Individual Study in Vocational-Technical Education (1-3) Individual study must be approved by supervising instructor and the student service area coordinator or department head. Approval form must be filed in the Office of the Department Head. May be repeated.

4750 Utilization of Instructional Media (3) (Same as Educ. C&I 4750 and Information Science 4750.)

GRADUATE Consult the Graduate Catalog for listing of graduate level courses.

Agricultural Education (056)

3450 Agricultural Experience and Future Farmers of America Programs (3) Prerequisite: Consent of instructor.

3460 Methods in Teaching Agriculture (3) Prerequisite: Consent of Instructor.

3470 Program Development and Adult Education in Agriculture (3) Prerequisite: 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. Prerequisite: Agriculture 1120, Agricultural Mechanization 3110, and/or consent of instructor. 2 hours and 2 labs.

4230-31-32 Problems in Agri-business Education (1-6, 1-6, 1-6) Total not more than 9 hours.

4240-41-42 Seminar in Agricultural Education (1, 1, 1) Prerequisite: 4350 or consent of department head.

4350-60 Student Teaching in Agricultural Education (4-6) Offered in off-campus centers. Application must be filed not later than final quarter of junior year. Courses must be taken concurrently. Prerequisites: 3450, 3440, 3470. Consent of instructor. Undergraduate credit only. S/NC.

GRADUATE Consult the Graduate Catalog for listing of graduate level courses.
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 the business teacher. S/NC only.

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 seminar helps the student complete 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.

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.

4345 Microcomputer Business Programming Applications in operating and programming microcomputers. BASIC language is used, and programming examples are oriented to business application. Data processing and word processing applications are included. Open lab available for required hands-on experience. Letter grade only.

4350 Teaching Accounting and Data Processing (2) Materials, 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 credit hours total. May be offered for letter grade or S/NC only.

GRADUATE
Consult the Graduate Catalog for listing of graduate level courses.

Distributive Education (273)

4410 Student Teaching in Distributive Education (9) Full-time, supervised experience in classroom teaching and coordinating distributive education. Prereq: 4460, 4470; Ed. C&L 3010-20 or 30 or VTE 4300; Edu Psych 3810; 4140 or equivalent. Undergraduate credit only. S/NC only.

4420 School and Community Relationships for the Teacher Coordinator (1) 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 only.

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 (3-9) Minimum 200 hours experience for each 3 credit hours in approved distributive business; concurrent analytic project. May be repeated for a maximum of 9 hours.

4450 Areas of Distribution (3) Marketing, production or service technology, social skills, basic skills, and distribution as these areas affect the distributive education curriculum in secondary and postsecondary programs.

4460 Organization and Operation of Distributive Education Programs (3) Background and development needs, federal and state legislation; curriculum implications, establishing, deleting, reporting, and improving the programs. Undergraduate credit only. S/NC only.

4470 Methods and Materials in Distributive Education (3) Prereq: 4480 or consent of instructor.

4480 Coordination Techniques in Distributive Education (2) Selected topics include: lab analysis, selecting and briefing the training supervisors; advisory committees; student teaching and other community services. Prereq: 4460 and 4470.

GRADUATE
Consult the Graduate Catalog for listing of graduate level courses.

Home Economics Education (490)

2240 Introduction to Home Economics Educational Programs (4) Introductory and exploratory experiences concerned with a teaching career in school-based and community-based home economics programs. Field experience included. F.

3240 Strategies of Teaching Home Economics (4) Teaching strategies, methods, techniques, and use of media. Field experience included. Prereq: 2240. F.

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. W.

4400 Teaching in Community-Based Home Economics Programs (4) Planning and implementing community-based home economics programs. Undergraduate credit only. S/NC only.

4500 Field Experience in Home Economics Community-Based Programs (4) Supervised field experience in appropriate related community-based programs. Includes seminar. S/NC. S.

4509 Field Experience in Home Economics Related Occupations (4) Supervised field experience and seminar in teaching occupations which utilize home economics skills and knowledge. Prereq: Consent of instructor. S/NC. May be repeated.

4510 Teaching Occupational Home Economics (2) Methods, organization and curriculum development for Home Economics Related Occupational programs. Prereq or coreq: 4420 and 4409.

4610 Student Teaching in Vocational Home Economics (9) Off-campus teaching centers. Prereq: 2240, 3240, and 4240. S/NC.

4611 Student Teaching in Vocational Home Economics (3) Taken with 4610. Prereq: 2240, 3240, 4240, Coreq: 4610. 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
Consult the Graduate Catalog for listing of graduate level courses.

Industrial Education

1610 Engine Analysis (3) Designed to give experimental laboratory experience in automotive technology. 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 multiview drawing, Stenographic writing, lettering, mechanical techniques, and applications of photography.

1630 Basic and Applied Electricity (3) Operation and characteristics of electrical systems and devices. Construction of demonstration apparatus and various electrical projects involving function of different types of circuits.

1640 General Metals (3) An introductory course dealing with processes, equipment, materials, products, and organizational and production techniques involved in ironwork processes in basic machining, foundry, sheetmetal, forging, heat treatment, arc and gass welding, fabrication, and the use and care of common machining tools.

1642 Welding and Cutting Practices (3) Prereq: 1640.

1661 General Woodworking (3) Basic course dealing with processes, tools, equipment, products, organization and shop management. Written and oral reports on processes importance in safety and using hand tools and basic machinery.

2611 Power Mechanics (3) Includes various prime movers, methods of utilization, distribution and transmission of power with internal combustion engines, maintenance and repair of small engines is stressed.

2620 Industrial Graphics (3) Auxiliary views, sections, conventional practices, fasteners, dimensioning, working drawings, and machine drafting. Prereq: 1620.

2630 Fundamentals of Applied Electronics (3) Electrical circuit analysis and introduction to semi-conductor and IC applications, including amplifiers, switching and timing circuits, and oscillators. Prereq: 1630.

2632 Electronics Technology (3) Basic principles and application of electronics. Undergraduate credit only.

2641 Machine Tool Processes (3) Introductory course of the function, uses, set-up, operation, and theory of basic machine tools. Prereq: 1640.

2652 General Plastics (3) Characteristics of thermoplastics and thermal setting materials, methods of determination, and resin conversion to finished product.

2660 Furniture and Cabinet Construction (3) Comprehensive study of cases and carcass construction with emphasis placed upon furniture and built-ins. Prereq: 1661.

2690-01-02 Basic Experiences in Trade and Industrial Education (3,3,3) Methods and materials of instruction. 3 periods.

3080-81 Machining of Metals (3, 3) Introduction to machine shop theory and practice in using basic machine tools. Undergraduate credit only.

3612 Automotive Mechanics (3) Advanced laboratory experience in tune-up, overhaul, transmission, and the suspension system. Prereq: 1810.

3620 Architectural Graphics (3) Introduction to fundamentals of graphic representation and residential architecture. Light construction principles are stressed and working drawings for a residential building are developed. Prereq: 1620.

3630 Digital Electronics Technology (3) Basic principles and application of digital electronics. Prereq: 2660 or permission of instructor.

3640 Advanced General Metals (3) Provides experiences in areas of hot and cold forming of metals, molding and metal finishing, tool grinding, heat treatment, fabrication, and precision measurement. Prereq: 2641.

3650 Welding, Brazing, Cutting, and Related Processes (3) Various types of welding equipment and fundamental techniques of welding. Undergraduate credit only.

3651 Plastic Processing (3) Plastics production equipment and related product design and processing of plastics. Prereq: 2552 and 1661.

3662 Construction Methods and Materials (3) Materials, methods, and equipment used in residential and commercial construction, inclusion of excavation, foundation, framing, roots, interior and exterior finishes, installation, and acceptable practices in assembly. Prereq: 1681.

3672 Graphic Arts Reproduction Processes (3) Graphic arts skills in printing and duplicating techniques and other modes of graphic communication.


3810 Related Science, Mathematics, and Technological Occupations (4) Relevant science, mathematics, and related occupations for registration. Applicants must show evidence of
bonafide occupational experience compatible with State Plan requirements. Occupational experience must be in a recognized trade area. S/NC.

3811 Manipulative Skills in Occupations (15) Prior department approval for registration. Applicants must show evidence of bonafide occupational experience compatible with State Plan requirements. Occupational experience must be in a recognized trade area. S/NC.

3812 Knowledge of Related Subjects in Occupations and Personal Qualifications (15) Prior department approval for registration. Applicants must show evidence of bonafide occupational experience compatible with State Plan requirements. Occupational experience must be in a recognized trade area. S/NC.

3820-21-22 Physical Testing Technology (3, 3, 3) Skills and techniques involved in radiography, metallography, tensile and compression testing, and other destructive and non-destructive testing methods. Undergraduate credit only.

3830 History and Philosophy of Industrial Education (3)

3840-41-42 Part-time Programs in Cooperative Industrial Training (3, 3, 3) Principles of organization, methods, and materials.

3850 Shop Organization and Management (3)

3860-61 Materials and Methods for Teachers of Shop and Related Subjects (3, 3)

3870 School Shop Safety (3)

4620 Special Topics in Drafting (3) Industrial practices in specialized areas of drafting selected for the individual student. Prereq: 6 hours of drafting.

4630 Industrial Electronics and Digital Equipment Controls (3) Applications of digital and analog electronics in industrial and control circuitry. Emphasis is placed on circuit analysis, trouble-shooting, and synthesis of systems, including microprocessor applications. Prereq: 3630.

4660 Vocational Technical Laboratory Equipment Maintenance (3) Understanding of preventive maintenance, maintenance, and calibration of instruments and power equipment used in industrial education shops.


4670 Manufacturing Processes (3) The manufacturing processes of industry and their relationship to careers. Prereq: 2621, 2641, 2660, 3951, or consent of instructor.

4671 Materials and Processes (3) Organic and inorganic materials and processes used to produce finished products. Content, curriculum, and techniques of laboratory operation. Prereq: Consent of instructor.

4682 Power and Energy (3) Development, control, transmission, conversion, interrelationship of power sources; content, curriculum, and techniques of laboratory operation. Prereq: Consent of instructor.

4690 Visual Communications in Industrial Arts (3) Methods of developing and transmitting ideas and information as related to industry and society. Content, curriculum, and techniques of laboratory operation. Prereq: Consent of instructor.

4691 Course Construction in Industrial Arts (3) Advanced work in the selection and arrangement of course content. Emphasis upon instructional objectives, project selection and informational assignments and evaluation. Prereq: Consent of instructor.

4692 Course Construction in Industrial Arts (3) Principles, practice, instructing, supervising, and machine design, calculations, design systems, and designing procedures. Undergraduate credit only.

4810 Directed Teaching (9) Guided observation and teaching in trade, industrial, and/or technical programs in secondary, area, adult, post-secondary, and junior college industrial vocational and technical curricula. Undergraduate credit only. S/NC.

4811 Directed Teaching (6) Observation of all types of trade and industrial classes; preparation of lesson plans and supervised teaching in at least two types. Prereq: Senior standing in industrial education. Prereq: or coreq: 4216, 1 hour and 5 periods. Undergraduate credit only. S/NC.

4815 Industrial Training & Supervision (3) Principles and techniques of handling and understanding the relationship between trainers, supervisors and employees. Covering such topics as effective communication, leadership traits, improving work methods, industrial safety and instructional skills for trainers and supervisors. Prereq: Senior standing.

4820 Foremanship Training by the Conference Method (3)

4830-31 Job Analysis (3, 3) Principles, practice, instructional methods.

4840 Methods of Teaching Shop and Related Subjects (3) Undergraduate credit only.

4850-51 Curriculum Building in Trade and Industrial Subjects (3, 3) Arranging course material in trade subjects, following up results of job analyses, preparing checking sheets and individual job sheets in both trade and related subjects. Prereq or coreq: 4120.

4860-61-62 Problems in Industrial Education (3, 3, 3)

4870 Numerical Control (3) Tooling, manual programming, automatic programming, automatic programming language, and use of automatic programmer as a computer. Undergraduate credit only.

4875 Microcomputer Programming for Education and Industry (3) This course is an introduction to the application of microcomputers for education and industry and the implications and impact of microcomputers on industrial education. Open lab available for required hands-on experience in operations and programming. Letter grade only.

4880-81-82 Seminar in Industrial Education (3, 3, 3) Educational innovations, current events, problems, and other topics associated with the field of industrial education.

4885 Organization and Development of Vocational Industrial Clubs of America (VICA) (3) Designed to give the industrial education teacher experiences and an understanding of the organization and operation of VICA. Prereq: Undergraduate degree and 3 year teaching experience when taken for graduate credit.

4890 New Developments in Industrial Education (3) Developments, pressing problems and recent trends in field of industrial education as presented by a coordinating instructor in conjunction with knowledgeable resource personnel.

4891 New Developments in Industrial Education (3) Developments, pressing problems and recent trends in field of industrial education as presented by a coordinating instructor in conjunction with knowledgeable resource personnel.

4895 New Developments in Industrial Education (3) Developments, pressing problems and recent trends in field of industrial education as presented by a coordinating instructor in conjunction with knowledgeable resource personnel.

4896 Internship in Training and Supervision (6, 9, 15) Cooperative work experience as a trainer or supervisor in an industry, business or health institution. Supervision of the experience is conducted by a person in management and the university coordinator. Seminar required. Prereq: Senior standing and VTE 4815. S/NC only.

GRADUATE

Consult the Graduate Catalog for listing of graduate level courses.
William T. Snyder, Dean
William A. Miller, Associate Dean
William K. Stair, Associate Dean
Andrew W. Spickard, Associate Dean

The College of Engineering

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 1858. In 1877 civil engineering was first recognized as a curriculum. The first mechanical course appeared in about 1847; other mechanical courses followed, and in 1877 this body of engineering was appointed. Although metalurgy 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 1956. 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 1963 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, Fred N. Peebles, who served from 1968 to 1980, and Robert E. C. Weaver, who served from 1981 to 1983.

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. The cooperative program is open to all students in good standing in the college.

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 in 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. A basic engineering lecture room, four engineering drawing laboratories, and engineering drawing staff offices are located on the second floor. Offices of the Co-Op and Minority Engineering Programs are located on the first floor.

Perkins Hall. This building houses the Departments of Civil Engineering, Engineering Science and Mechanics, Engineering Experiment Station, and the Offices of the Dean of the College of Engineering. The building contains laboratories, faculty offices, and classrooms.

Nuclear Engineering Building. This build-
ing 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 Departments 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 portion of this building is occupied by Djembe Hall, is occupied by Mr. J. D. Froula, secretary-treasurer, and his staff.

**Cooperative Engineering Program**

The five-year Cooperative Engineering Program is offered to students in the college in a manner 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 quarters—usually six, a minimum of five—in career-related, planned assignments of professional 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 freshman and sophomore students. A fall application period conducted in early October is the source of most candidates placed for the following summer or fall; a late application period may be held in May for students who failed to apply during the previous fall and who hope for placement the subsequent winter. Students must be attending the College of Engineering at the time of application. Those in school fall quarter who are undecided about co-op participation should nevertheless apply during the fall application period, and then request that the applications be held until they are ready to make a definite commitment, since full application process involves all placements for which they are qualified.

In general, students begin their work periods after completing their freshman academic work and continue their study until beginning their senior year. Applicants must be able to schedule a minimum of five work periods alternating with academic quarters prior to beginning their senior year. Some inco-rowed work periods are not available 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 classified as follows in terms of standard undergraduate program for their anticipated degree in engineering:

- Freshman: 40-59
- Sophomore: 60-100
- Junior: 101-149
- Senior: 150-up

Second degree and transfer students will be assigned "equivalent quarters completed" (not dependent upon hours completed) which will indicate progress toward the engineering degree. Total hours completed are not an applicable measure of the progress of such students.

Such students who wish to co-op must plan very carefully in order to fit into the established schedule of courses offered for co-ops. Students planning to transfer should begin working as soon as possible with an advisor from the department they plan to enter in order to mold into the co-op schedule at an optimum time. A brochure with further details may be obtained from the Cooperative Engineering Program Office, University of Tennessee, Knoxville, Tennessee 37996-2350.

**Graduate Program**

Graduate programs leading to the degree of Master of Science are offered 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, industrial, 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. Information may be obtained from the Registrar, The University of Tennessee Space Institute, Tullahoma, TN 37388.

**Engineering Experiment Station**

William T. Snyder, 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.

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 an organization formed by many engineering societies and known as the Accreditation Board for Engineering and Technology (ABET). Currently accredited engineering curricula at UTK include aerospace, agricultural, chemical, civil, electrical, engineering science, industrial, mechanical, metallurgical, and nuclear.

**DESIGNATION OF A MINOR**

An engineering undergraduate may declare a minor in a non-engineering subject area and have the minor listed on the permanent record under the following conditions:

1. Only one minor may be declared and officially designated.
2. The minor must be one officially approved and described in the UTK catalog. No unofficial minors will be recognized. Minors exist in Architecture and Business Administration, and in numerous departments in Agriculture and Liberal Arts. Presently no engineering student can minor in another engineering discipline, nor can a non-engineering student declare an engineering minor.
3. Courses taken to satisfy the minor may also be used to satisfy engineering degree requirements, provided that the courses would be a part of engineering degree requirements even if no minor was declared. Completion of a minor often involves the taking of some courses which cannot be used to satisfy the minimum requirement for an engineering degree.
4. A student should notify his or her advisor and major department office when beginning work on a minor. The intention to complete a minor must be declared at the
COURSE LOAD
The maximum number of hours which can be taken by an undergraduate engineering student without special permission is 19. The Associate Dean for Academic Affairs 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 if the course is an engineering course. For other drop deadlines, refer to 'Changes in Registration' in the general section of this catalog.

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 regulations.

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 designate) into which the student proposes 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 51).

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 electives 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 with 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 technology-society interaction, 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 of the areas 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 with selected areas as follows:

Area I. Human, Economic, and Political Relationships to Engineering
A. Governance and Political Science
B. Economics
C. Social Science 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 follows are selected by the committee with revisions as course offerings and needs change. They are recommended as satisfying the non-technical (humanities-social sciences) elective requirements with 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 list is intended to eliminate paperwork for the most commonly chosen electives and to illustrate the kinds of suitable courses. The list is not all inclusive, 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 electives 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 particular course. With respect to student records these lists are handled by means of a substitution sheet which originates with the advisor. Courses which are primarily skill development courses, involve 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 science electives in an engineering curriculum. A minimum of 24 quarter hours of acceptable humanities-social science electives are required in all programs.

ELECTIVE COURSES IN HUMANITIES AND SOCIAL SCIENCES
Area I. Human, Economic, and Political Relationships to Engineering
IA. Governance and Political Science
Economics 3340
Geography 3610
History 3785, 4310-20, 4370, 4380
Political Science 2510-20, 3545-46, 3555, 3566, 3710-20, 3750-60, 3801-02-03-04, 3880, 4060, 4535-36 4540-50, 4545, 4665-66
Sociology 3030, 4530, 4560
IB. Economics
Economics 2510-20, 3210-11, 3220, 3230, 3240, 3210, 3310, 3410-20
Geography 2110-20-30
IC. Sociology and Psychology
Geography 3000, 3600, 3660
Psychology 2500, 2520, 2540, 3120, 3220, 3420
Rural Sociology 3420
Sociology 1510-20, 3010, 3030, 3150, 3220, 3320, 3330-40-50, 3410-20, 3610, 4330, 4560
ID. Human Values
Geography 3000
History 3600-70-80, 3270
Philosophy 1510-20, 2310, 2510, 3111-21-31-41-51, 3440, 3690
Religious Studies 2610, 3600-10-20, 3611, 3740
Zoology 3410 (Bioethics)
Area II. Society—Its Culture, History, and Literature
IIA. Fine Arts
Music 1210, 1210, 2310-20-30-40, 3350
Music 2120, 1210-12-20-30-40, 3350
Philosophy 2410, 3910
Theatre 3252-53-54
IIB. Culture
American Studies 3010
Anthropology 3410
II. Literature

Comparative Literature 2010

English 2510-20, 2560-70-80, 3010-20-30, 3070-80, 3160-70, 3940, 4010-20, 4050-60-70, 4310-20-30-40, 4610-20, 4651-52

German 3110-20-30

Russian Studies 3170-11

Russian 3160-20-30

III. Anthropology

Anthropology 2510-20-30, 3410, 3450, 4420

Asian Studies 2510-20

Geography 1910, 3660

History 1950-60, 4250-60-70, 4670

Area III. Technology and Society

I. Human Habitat

Geography 3530, 3600, 3910, 4075

Sociology 1510-20, 3130, 3410-20, 3610, 4030, 4110, 4330

II. Technology Assessment

Philosophy 3720, 4710

Rural Sociology 4450

Sociology 3610, 4330

III. Communication

Journalism 10-10, 4410

Sociology 4330

IV. Resources

Economics 4260

Forestry 2500

Geography 2120, 3490

University Studies 3110-20

American History Requirement. Engineering students, regardless of national origin, must fulfill the American history requirement described on page 14 of this catalog. Those students who have not had the required year of American history in high school may choose the required nine quarter hours from History 2510, 2520, 2511, and 2521, or other courses deemed suitable by the Department of History. These hours can be counted as part of the required block of humanities and social science electives.

Technical Electives. Technical electives are to be selected with the advice and approval of the student’s major department. In some of the curricula tabulation a choice of such electives is indicated, and regulations in regard to this selection are stated.

The Voluntary ROTC Program.

Engineering students may participate in the ROTC Program. Advanced ROTC courses (3000 and 4000 series) may be counted as technical elective credit toward an engineering degree up to a total of nine (9) quarter hours. Normally, Military Science courses cannot be used as humanities-social science electives. 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 student’s 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.

ADVISORY CONFERENCE.

The relationship between an engineering student and an advisor is an important one, and a student should go to the advisor for assistance or information at any time. All students are required to see their advisor during the Fall Quarter (or during one other quarter if they are not in school during the Fall). Engineering students normally are asked to see their advisors during the two-week period immediately preceding the advance registration period. A record of the advising conference is needed in order to advance register. During other quarters of the year, the student’s department determines whether or not an advisor must be consulted prior to advance registration. An advising conference record card must be presented in order to advance register for these quarters also, though an actual conference is required only once a year for most students.

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 quarters indicated. Although the time 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 curricula 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.

Prerequisites Before registering for any engineering course, a student should make certain that any necessary background work has been completed. Refer to the course descriptions to determine what is needed. In addition to specific prerequisites listed, it is assumed that a student taking sophomore or junior engineering courses has completed all freshman courses, whether specifically listed as a prerequisite or not. When this is not the case, a student should seek advice from the advisor or department responsible for the course in question before registration so as to minimize the chances of academic difficulty. Students who do not have prescribed prerequisites may be dropped from a course at any time during a quarter when the lack of prerequisites is discovered.

Aerospace Engineering

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Math 1440-50-60</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>English 1010-20-33</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Graphics 1410-20</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Basic Engineering 1310-20-30</td>
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<td>-</td>
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<tr>
<td>Math 2840-50-60</td>
<td>4</td>
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<tr>
<td>Physics 2310-20-30</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Met. Engr. 2110</td>
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<td>3</td>
</tr>
<tr>
<td>Computer Science 3150</td>
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<tr>
<td>Humanities/social science electives</td>
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Total: 204 hours

Agricultural Engineering

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<td>Agricultural Engineering 1130</td>
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<td>Agriculture 1130-40</td>
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<td>Basic Engineering 1310-20-30</td>
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<tr>
<td>Basic Engineering 1410-20-30</td>
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<tr>
<td>English 1010 or 1011; 1020; 1033</td>
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<td>Graphics 1410-20</td>
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<tr>
<td>Mathematics 2840-50-60</td>
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<td>4</td>
</tr>
<tr>
<td>Physics 2310-20-30</td>
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<td>3</td>
</tr>
</tbody>
</table>

Sophomore

| Biology 1210 or 1220 or 1230 | 4 | - |
| Chemistry 1110-20-30 | 4 | 4 |
| Engineering Science and Mechanics 3311 | 4 | - |
| Engineering Science and Mechanics 3700 | 4 | - |
| English or communications elective | - | 3 |
| Mathematics 2840-50-60 | 4 | 4 |
| Physics 2310-20-30 | 3 | 3 |

Junior

| Agricultural Engineering 3100 | 1 | - |
| Agricultural Engineering 3610-20-30 | 4 | 4 |
| Electrical Engineering 3110-20 or 2010-20 | 3 | 3 |
| Engineering Science and Mechanics 3110 | 3 | - |
| Engineering Science and Mechanics 3120 or 3320 | - | 3 |
| Engineering Science and Mechanics 3510 or Civil Engineering 3710 | - | 3 |
| Computer Science 3150 | - | 3 |
| Mechanical Engineering 3311 | 3 | - |
| Mechanical Engineering 3340 | - | 3 |
| Speech 2311 or 2361 | - | 4 |
# Biomedical Engineering

## Available in Engineering Science Degree Program.

<table>
<thead>
<tr>
<th>Year</th>
<th>Hours Credit</th>
<th>Courses</th>
</tr>
</thead>
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<tr>
<td>Freshman</td>
<td></td>
<td>Mathematics 1840-50-60</td>
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<tr>
<td></td>
<td></td>
<td>Chemistry 1110-20-30</td>
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<tr>
<td></td>
<td></td>
<td>English 1010-11-20-33</td>
</tr>
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<td>Basic Engineering 1310-20-30</td>
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<tr>
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<tr>
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<td>Mathematics 2840-50-60</td>
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<td>Engr. Sci. &amp; Mech. 3311, 3700</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3110</td>
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<td></td>
<td>Engr. Sci. &amp; Mech. 3410</td>
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<td>*Engr. Sci. and Mech. 3320 or 3120; 3010</td>
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<td>*Mech. Engr. 3311; 3440 or 3540</td>
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<td></td>
<td></td>
<td>Computer Science 3150</td>
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<td></td>
<td>Industrial Engr. 4520</td>
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<td></td>
<td>*Engr. Science Electives (including BMD electives)</td>
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<td>3 *Technical electives</td>
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<td></td>
<td>3 *Humanities/social science electives</td>
</tr>
<tr>
<td>Senior</td>
<td></td>
<td>*Engr. Science &amp; Mech. 4610, 4620</td>
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<td>3 *Engr. Sci. electives (including bio. med. engr. electives)</td>
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<td>8 *Humanities/social science electives</td>
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</table>

Total: 195 hours

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1. Required for pre-medical, pre-dental, and pre-veterinary medicine programs. Students in other biomedical engineering options should consult their advisor to replace this series by Chemistry 2230 and technical electives.
2. Humanities/social science courses approved by the department.
3. Appropriate courses in the College of Engineering approved by the department.
4. Upper-division courses in mathematics, computer science, statistics, natural science, or engineering approved by the department. Zoology 3056 or 3069 recommended for pre-med.

# Chemical Engineering

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<tr>
<th>Year</th>
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<th>Courses</th>
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<td>Math 1840-50-60</td>
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<tr>
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<td></td>
<td>Basic Engineering 1410</td>
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<td>Math 2840-50-60</td>
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<td></td>
<td>Chemistry 3211-29-30</td>
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<td>Junior</td>
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<td>Chem. Engr. 3420-40</td>
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<td>*Humanities/social science electives</td>
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<td>*Eng. Sci. and Mech. 2720</td>
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<tr>
<td></td>
<td></td>
<td>4 *Humanities/social science electives</td>
</tr>
</tbody>
</table>

Total: 201 hours

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1. A minimum of one-half (12 quarter hours) of the humanities/social science electives must be taken from a single subgroup under one of the three areas of the humanities and social science electives.
2. Technical Electives must be approved by the student’s advisor or the primary must come from the departmental list of approved courses for 12 credits.
3. Humanities/social science electives must be approved in advance by the department.

# Electrical Engineering

<table>
<thead>
<tr>
<th>Year</th>
<th>Hours Credit</th>
<th>Courses</th>
</tr>
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<tbody>
<tr>
<td>Freshman</td>
<td></td>
<td>Math 1840-50-60</td>
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<tr>
<td></td>
<td></td>
<td>English 1010-20-30</td>
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<td></td>
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<td>Graphics 1410-20-30</td>
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<td></td>
<td></td>
<td>Basic Engineering 1410</td>
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<td>Sophomore</td>
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<td>Chemet. Engr. 2010</td>
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<td>Chem. Engr. 3410</td>
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<td></td>
<td>Physics 2310-20</td>
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<td>Junior</td>
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<td>Chem. Engr. 3420-40</td>
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<td>Chem. Engr. 4110, 3610</td>
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<td>Senior</td>
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<td>Chem. Engr. 3620, 4220</td>
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<td>Chem. Engr. 4410-20</td>
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<td></td>
<td>Chemistry 4110</td>
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<td>Met. Engr. 3150</td>
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<td>Major electives</td>
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<td>*Technical electives</td>
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<td>*Eng. Sci. and Mech. 2720</td>
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<tr>
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<td>4 *Humanities/social science electives</td>
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</tbody>
</table>

Total: 201 hours

---

1. Required for pre-medical, pre-dental, and pre-veterinary medicine programs. Students in other biomedical engineering options should consult their advisor to replace this series by Chemistry 2230 and technical electives.
2. Humanities/social science courses approved by the department.
3. Appropriate courses in the College of Engineering approved by the department.
4. Upper-division courses in mathematics, computer science, statistics, natural science, or engineering approved by the department. Zoology 3056 or 3069 recommended for pre-med.
Humanities/social science electives.............. 4 4 4

Total: 204 hours

Computer Engineering
1Electr. Engr. 4600........... 3 -
2Electr. Engr. 4700........... 3 -
3Electr. Engr. 4800........... 3 -
4Electr. Engr. 4610........... 3 -
5Electr. Engr. 4620........... 3 -
6Electr. Engr. 4830........... 3 -
7Electr. Engr. 4850 or 4750.. 3 -
8Electronics 2510........... 4 -
9Electr. Engr. 4100........... 4 -
10Humanities/social science electives........ 4 4 4

Total: 204 hours

Electronics and instrumentation
1Electr. Engr. 4680-90, 4660 3 3 3
2Electr. Engr. 4370........... 3 -
3Electr. Engr. 4700........... 3 -
4Electr. Engr. 4100........... 4 -
5Electr. Engr. 4800........... 3 -
6Electr. Engr. 4740........... 3 -
7Electr. Engr. 4610........... 3 -
8Economics 2510........... 4 -
9Electr. Engr. 4850........... 3 -
10Electr. Engr. 4350........... 3 -
11Humanities/social science electives........ 4 4 4

Total: 204 hours

Bioelectric Option
Biology 1210-20-30........... 4 4 4
Chemistry 2230........... 4 -
Electr. Engr. 4280........... 4 -
Zoology 3080-3089........... 3 5
Electr. Engr. 4850........... 3 -
1Electr. Engr. 4600........... 3 -
2Electr. Engr. 4990........... 3 -
3Electr. Engr. 4370........... 3 -
4Electr. Engr. 4620........... 3 -
5Humanities/social science electives........ 4 4 4

Total: 206 hours

Engineering Physics

Hours Credit
Freshman Mathematics 1840-50-60........... 4 4 4
Chemistry 1110-20-30........... 4 4 4
3English 1010-11-20-33........... 3 3 3
4English 2040-50-60........... 4 4 4
5English 2060-50-60........... 4 4 4
6English 2070-50-60........... 4 4 4
7Mathematics 1840-50-60........... 4 4 4
8Mathematics 1860-50-60........... 4 4 4
9Physics 1310-20-30........... 4 4 4

Total: 207 hours

Engineering Science

Hours Credit
Freshman Mathematics 1840-50-60........... 4 4 4
Chemistry 1110-20-30........... 4 4 4
English 1010-11-20-33........... 3 3 3
English 2040-50-60........... 4 4 4
Physics 2310-20-30........... 3 3 3
Met. Engr. 2110........... 3 3 3
                                    3 3 3
Engr. Sci. (M. 3700, 3511, 3110).... 4 4 4
Engr. Elec. 3110........... 3 3 3
1Humanities/social science electives........ 4 4 4
2Sophomore Mathematics 2840-50-60........... 4 4 4
Physics 2310-20-30........... 3 3 3
Met. Engr. 2110........... 3 3 3
Engr. Sci. (M. 3700, 3511, 3110).... 4 4 4
Engr. Elec. 3110........... 3 3 3
1Humanities/social science electives........ 4 4 4
3Junior Engr. Sci. and Mech. 3011........... 1 1 1
Engr. Mech. 3311, 3440 or 3540........... 3 3 3
Engr. Elec. 3120........... 3 3 3
Computer 3150........... 3 3 3
Engr. Sci. & Mech. 3320 or 3120........... 3 3 3
Engr. Elec. 4520........... 3 3 3
Math elective........... 3 3 3
1Humanities/social science electives........ 4 4 4
4Senior Engr. Sci. and Mech. 4010........... 4 4 4
Engr. Sci. & Mech. 4810, 4620........... 4 4 4
Engr. Sci. & Mech. 4710........... 4 4 4
1Technical electives........... 3 3 3
1Humanities/social science electives........ 4 4 4

Total: 197 hours

Industrial Engineering

Hours Credit
Freshman Math 1840-50-60........... 4 4 4
Chemistry 1110-20-30........... 4 4 4
English 1010-11-20-33........... 3 3 3
English 2040-50-60........... 4 4 4
Physics 2310-20-30........... 3 3 3
Ind. Engr. 3210........... 1 1 1
Engr. Sci. 3710-30-33........... 4 4 4
Ind. Engr. 3610........... 3 3 3
Computer Science 3150........... 3 3 3
        3 3 3
4Junior Ind. Engr. 3250........... 3 3 3
Ind. Engr. 3450-40........... 3 3 3
Engr. Elec. 3110-20-30........... 3 3 3

Total: 199 hours

Mechanical Engineering

Hours Credit
Freshman Math 1840-50-60........... 4 4 4
Chemistry 1110-20-30........... 4 4 4
Physics 2310-20-30........... 3 3 3
Engr. Sci. & Mech. 3311, 3700........... 3 3 3
Engr. Sci. & Mech. 4710........... 3 3 3
Engr. Sci. & Mech. 4810, 4710........... 3 3 3
1Technical electives........... 3 3 3
1Humanities/social science electives........ 4 4 4

Total: 204 hours

Metallurgical Engineering

Hours Credit
Freshman Math 1840-50-60........... 4 4 4
Chemistry 1110-20-30........... 4 4 4
Physics 2310-20-30........... 3 3 3
Engr. Sci. & Mech. 3311, 3700........... 3 3 3
Engr. Sci. & Mech. 4710........... 3 3 3
Engr. Sci. & Mech. 4810, 4710........... 3 3 3
1Technical electives........... 3 3 3
1Humanities/social science electives........ 4 4 4

Total: 207 hours

Humanities/social science electives: minimum of 24 hours required.
Technical electives: upper-division courses in engineering, mathematics, or physics as approved by the department.

1To be taken from Liberal Arts distribution requirements,
with at least 16 hours from courses approved for
Humanities.
2The honors sequence Physics 1318-28-38, 2318-28-38 is
recommended for qualified majors. Students entering
the program off quarter, i.e., Winter, Spring, or Summer,
may substitute Physics 1319-20-30. Transfer students
and other engineering departments who have already taken
Basic Engineering 1310-20-30 may substitute it for Physics
1310-20-30.
3To be taken in College of Engineering.
5From engineering, mathematics, computer science, physics,
chemistry, or astronomy.
6Students not planning to pursue graduate studies may
substitute Physics 2318-28-38.
8Course will usually be required; however, a student’s
major advisor may substitute another 4000-level electrical
engineering course without filing a substitution form.
9A student must take any three of the first six courses (top
two lines)—the remaining three of these first six may be any
4000-level or higher course in electrical engineering.
10Appropriate courses in the College of Engineering approved
by the department.
11Appropriate courses approved by the department.
12Upper-division courses in mathematics, statistics, natural
science, or engineering approved by the department.
13From engineering, mathematics, computer science, physics,
chemistry, or astronomy.
14Students not planning to pursue graduate studies may
substitute Physics 2318-28-38.
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<tr>
<td>Engr. Sci. &amp; Mech. 2720</td>
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<tr>
<td>Nuclear Engr. 3040-50</td>
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<td>Met. Engr. 3210-20-30</td>
<td>4 3 4</td>
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<tr>
<td>Nuclear Engr. 3010</td>
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<td>Met. Engr. 3130</td>
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<tr>
<td>Chem. Engr. 3420</td>
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<tr>
<td>Elec. Engr. 3110 and either 3120 or 3130</td>
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<tr>
<td>Met. Engr. 4240-50</td>
<td>3 3 3</td>
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<tr>
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<td>Met. Engr. 4730-40</td>
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<tr>
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Total: 199 hours

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**Basic Engineering and Graphics**

**(Non-Departmental Unit)**

**Basic Engineering (179)**

Coordinator: J. E. Stoneking

<table>
<thead>
<tr>
<th>Course Code</th>
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<tr>
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<tr>
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<tr>
<td>Met. Engr. 4510</td>
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<td>Humanities/social science electives</td>
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<td>Chemistry 4110</td>
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</table>

Total: 200 hours

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**Departments of Instruction**

**Agricultural Engineering**

*(See College of Agriculture)*

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**Basic Engineering and Graphics**

**(Non-Departmental Unit)**

**Basic Engineering (179)**

Coordinator: J. E. Stoneking

1310 Basic Mechanics I (4) Forces in a plane; free body diagram analysis; equilibrium in two dimensions; application to frames and machines; friction; introduction to forces in space. Required of all engineering students except engineering physics majors. Prereq: Math 1840. 4 hrs. lec.

1320 Basic Mechanics II (4) Position and displacement vectors; particle kinetics using Newton's laws, impulse-momentum, work-energy; introduction to simple harmonic motion. Prereq: 1310; coreq: Math 1850. 4 hrs. lec.

1330 Basic Thermodynamics (4) Introduction to thermodynamics fluid statics, and mechanics. Buoyancy, forces on submerged surfaces; Bernoulli's equation; first law of thermodynamics discussing work, heat, and other forms of energy. Required of all engineering students except engineering physics majors. Prereq: 1310; coreq: Math 1850. 4 hrs. lec.

1410 Engineering Computations (2) Familiarization and introduction to the university computing systems for problems. BASIC language. Prereq: Math 1840. 2 hrs. and open computation lab.

**Graphics (443)**

Coordinator: E. K. Boyce

Basic Faculty:

Professors: C. A. Newton (Emeritus), M.S. Syracuse; W. W. Thomas, Jr. (Emeritus), B.S. Tennessee; Associate Professors: G. H. Parnham, Jr. (Emeritus), B.S. Cincinnati; E. K. Boyce, M.S. Tennessee; W. A. Lidday, Jr., M.S. Tennessee.

Chemical Engineering majors require a minimum of 24 quarter-hours of humanities—social studies courses which are to be selected from the list on pages 130—131. A minimum of 12 hours must be taken from a single sub-group under one of the three major headings.

Graduation in either chemical or metallurgical engineering requires a minimum grade point average of 2.00 for all departmental courses.

**PROGRESSION TO UPPER-DIVISION PROGRAMS**

Progression of chemical or metallurgical engineering students to departmental upper-Division courses is competitive and is based on 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.

**Upper-Division Status**

A Lower-Division student may apply for progression to Upper-Division status after completing 30 quarter hours of Lower-Division engineering curriculum course work with an overall GPA of at least 2.4. This must include Chemical and Met. Eng. 2010 and 2020 for Chemical Engineering majors, and 2010 and 2030 for Metallurgical Engineering majors.

**Provisional Status**

Students who have completed 60 quarter hours of Lower-Division engineering curriculum course work with an overall GPA of at least 2.0 may apply for provisional status. The granting of PROVISIONAL UPPER-DIVISION STATUS is based on the availability of space in the departmental programs under UPPER-DIVISION STATUS students have been accommodated. Provisional students are required to demonstrate their abilities to perform satisfactorily in upper-division courses by attaining a minimum GPA of 2.0 in at least 12 hours of college-level required subjects.
courses specified by the department. Further progression to upper-division courses is dependent upon this minimum level of performance.

Any chemical or metallurgical student with an overall GPA below 2.0 will not be admitted to upper-division Chemical or Metallurgical Engineering courses. Students who have not been admitted to an Upper-Division Status will be dropped from departmental class rolls.

Transfer Students at the Upper-Division level are admitted on a Provisional Status basis only. Any student presenting more than 40 hours of Lower-Division engineering curriculum course work by transfer credit is considered to be a Transfer student.

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 leading to the M.S. and Ph.D. degrees with specialization in polymer science and engineering in chemical engineering and materials science is offered jointly with the Department of Chemistry which offers a degree with similar specialization.

These programs have been strengthened by fellowships or grants provided by industrial agencies. The University's Graduate School contracts with industry and governmental agencies. The University's Graduate School operates a Resident Graduate Program at Oak Ridge, Kingsport, and Chattanooga.

See the Graduate Catalog for detailed information.

Chemical and Metallurgical Engineering (227)


2011 Sophomore Inspection Trip (0) Inspection trip to industrial plant. Usually scheduled in fall on ETEA day. Required for chemical engineering and metallurgical engineering majors. Coreq: 2020.


2030 Process Principles and Materials III (4) Materials structure—property relationships for metals, inorganic and organic compounds, with emphasis on mechanisms of control of properties by chemical composition, thermal and mechanical treatment; crystallography, imperfections, mechanical properties, heat treatment, molecular weight, and particle size distributions. Prereq: Chemistry 1130, Math 1800. 3 hrs. and 1 lab period. F, S, SU.

3100 Introduction to the Materials of Technology (4) Examination of sources, processing, and properties of metallic, ceramic, polymeric, and composite materials based upon an historical perspective and current practices in technology, architecture, and art. Lectures and demonstrations. Open to students in all colleges. Prereq: Introductory science course.

4310-20 Seminar (1,1) Presentation and discussion of economic, political, financial, and social topics of interest to chemical and metallurgical engineers. S/NCR: 4310 - F: 4320 - W, S.

Chemical Engineering (226)

3010 Industrial Inspection Trips (1) Technology of chemical process industries; operations in Tennessee industry; plant trips. S/NCR: 3010.


3230 Special Problems (3) Investigation of chemical engineering problems.

3410 Flow of Fluids (4) Differential and overall momentum, energy, and mass balances; flow in pipes, tubes, systems, and packed beds; metering devices, pumps. Prereq: Chem. Engr. 2020, Math 2850. 3 hrs. and 1 lab W, S.

3420 Heat Transfer (4) Differential and overall energy balances; steady and unsteady state, heat conduction in simple geometries, heat transfer in tubes and heat exchangers; condensation and boiling radiation. Prereq: 3410. 3 hrs. and 1 lab W, F, W.

3424 Stagewise Operations (3) Analytical and graphical methods to stage-wise separatory operations. Prereq: Chemistry 3420. W, S.

3450 Diffusional Operations (3) Diffusion simultaneous heat and mass transfer, applications including humidification, gas absorption, extraction. Prereq: 3420, Chemistry 3420. F, W.

3610 Introduction to Process Dynamics and Control (3) Process modeling and control system design. Mathematical models for several industrial processes are developed from a mass, component, and energy balance basis. The models are compared to both industrial and laboratory data. Model linearization, Laplace transfer analysis, block diagram algebra, transfer function models, industrial sensors and values. Lab. Prereq: Math 2840, Chem. Engr. 2020. S, SU.

3620 Industrial Process Control (3) Design and theory and practice for industrial process control. Experimental process modeling (process identification), feedback control, cascade control, feedforward control, degrees of freedom, stability analysis, controller tuning. Control systems will be designed for a number of typical industrial unit operations. Lab. Prereq: 3610. F.

4010-20 Thesis (3,3) Investigation and report of elementary chemical engineering problem. E.

4110 Chemical Engineering Data Analysis (3) Analytical and experimental techniques for the extraction and statistical properties of samples and source systems: empirical modeling of processes; statistical process and product design. Prereq: Math 3150. F, W.

4120 Probabilistic Chemical Engineering Systems (3) Experiment design, simulation of stochastic systems, predictive techniques, and analysis of networks in the process industries. Prereq: 4110.

4130 Introduction to Optimization (3) Principles and applications of optimization techniques in chemical process design; unconstrained optimization, equality constrained optimization, inequality constrained optimization, and dynamic programming. Prereq: Math 2840.

4150 Computers in Chemical Engineering (3) Introduction to computer solution of Chemical Engineering problems. Application of existing computer programs. The applications studied include: Process design, statistics, mathematical modeling, computer graphics, and personal computing. Prereq: Math 3150. F, W.

4200 Chemical Engineering Laboratory (3) Laboratory investigations of controlling factors in chemical engineering operations. Prereq: 3440-50, 4350. F, S.

4230 Project Laboratory (3) Project investigations of chemical engineering problems, stressing techniques of group effort. May be repeated. E.

4410 Design of Separation Processes (4) Mass and energy transfer fundamentals, design, and control of materials separation processes. Prereq: 3440-50. W, S.


4430 Special Problems in Design and Economics (3) Extension of 4420 for student participation in A.I. Ch. E. Interns' contest; other advanced design projects. Prereq: 4420.

4450 Hydrocarbon Processing (3) Study of specialized characterization of physical properties of fossil raw materials and products, and of processes for conversion of fossil fuel raw materials into products needed in industrial energy, industrial raw material and consumer markets. Prereq: 3440.

4470 Sulfur Removal from Coal and Associated Problems (3) Chemical and physical properties of domestic coals; scrubbing systems; benefit system chemistry; physical and chemical methods; fluidized bed combustion with both natural and synthetic S0x sorbents; stack S02 scrubbing; carbon dioxide capture. Prereq: 4420.

4480 Coal Processing to Liquid Fuels (3) Characterization of various coals with respect to current liquefaction methods; modeling of conversion processes and estimation of maximized liquid yields; liquid fuel property requirements; pyrolysis; catalytic hydrogenation; reactor design considerations; review critique of selected articles on both the current literature and patents. Prereq: Consent of instructor.

4530 Chemical Engineering Reaction Kinetics (3) Chemical reaction rates in closed and flow systems; interpretation of laboratory and pilot plant data; reactor design. Prereq: 3420, Chemistry 3430. W.

4540 Fluid-Solid Operations (3) Heat and mass transport in fixed and fluidized beds; applications include absorption, ion exchange, crystallization. Prereq: 3440-50.


4730 Mass and Energy Flow in Biological Systems (3) Basic physiochemical and organizational principles applicable to biological systems. Derivation of general equations of biomass and energy transfer. Thermodynamics of transport and equilibrium in biological systems. Discussion of Volterra's equation and biological clocks, etc. 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 cell behavior phenomena and design of artificial organs. Prereq: 3440 and 4540, or consent of instructor.

4750 Microbiological Process Engineering (3) Application of chemical engineering principles and design concept to microbiological processes; continuous culture of microorganisms, food processing and pharmaceutical processes. Prereq: 3440, 3450, or consent of instructor.

4760 Principles of Biological Separation (3) Fundamentals and techniques of modern biochemical separation methods; classroom demonstrations, design of production and analytical systems. Prereq: Consent of instructor.

4890 Special Problems in Chemical Engineering (3) Chemical engineering problems related to recent develop-
opments in industrial practice or engineering research. Prereq: Consent of Instructor. May be repeated. Maximum credit 9 hours.

4910-40 Engineering Internship in Industrial Problems (3) Project Laboratory (3,3) Selected students work in small groups on real developments in industrial practice or engineering research. Operations include new process design, computerized operations, design and evaluation of test instruments, design and evaluation of test processes. See 2010 for listing of credits. Prereg: 4910-20 and consent of Instructor. Maximum credit 9 hours.

Graduate Consult the Graduate Catalog for listing of graduate level courses.

Metallurgical Engineering (679)

2040 Experimental Methods in Metallurgy (4) Lectures provide subject bases for laboratory experiments. Experiments are conducted by laboratories. Use of heat capacity of polynomials, x-ray plotters, computer experimental data analysis and readout, dialometer study, electrical resistivity measurements, microscope calibration and metallographic preparation and photomicroscopy. 2 hrs. and 2 labs. Prereg: 2030.

2110 Engineering Materials I (3) Introductory course concerning atomic, crystal, and microstructure of solids and mechanical, physical, and chemical properties of engineering significance. 3 hrs. or 2 hrs. and 1 lab. Prereg: Sophomore standing in engineering. E.

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. Prereg: Physics 2310-2410 or equivalent. 1 hr. lab. SNC.

3010 Industrial Inspection Trips (1) Technology of metallurgical industries, emphasizing Tennessee industry. Plant trips. S/N/C.

3040 Metallurgical Thermodynamics (4) Applications of laws of thermodynamics to problems of metallurgical interest. Second law and entropy; auxiliary functions; relationship between free energies and phase diagrams; reaction equilibria in gases and between gases and solids. Use of heat capacity of polynomials, x-ray plotters, computer experimental data analysis and readout, dialometer study, electrical resistivity measurements, microscope calibration and metallographic preparation and photomicroscopy. 2 hrs. and 2 labs. Prereg: 2030.

3110 Engineering Materials I (3) Introductory course concerning atomic, crystal, and microstructure of solids and mechanical, physical, and chemical properties of engineering significance. 3 hrs. or 2 hrs. and 1 lab. Prereg: Sophomore standing in engineering. E.

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 by specification of composition, thermal, and mechanical treatment; correlation of resultant properties with service performance. Suggested for electrical engineering students.

3140 Engineering Material IV (3) Extension of 2110 with emphasis on materials processing, specification, and evaluation. Suggested for mechanical and industrial engineering students.


3170 Engineering Materials VII (3) Extension of 2110 to biomedical applications of materials. Engineering materials in biomedical applications; metals, polymers, ceramics, and composites; methods of fabrication; clinical applications; corrosion problems; failure analysis; fabrication. Prereg: 2110 or equivalent.


3220 Diffusion and Annealing (3) Introduction to solid state kinetics: point defects, solid solutions, diffusion equations and mechanisms, annealing of cold worked structures. Prereg. 3210.

3230 Phase Transformations (4) Thermodynamic and structural factors governing binary equilibrium. Ternary and quaternary systems. Prereg: Chemistry 1110-1120 or equivalent. 3 hrs. and 1 lab. S.

3310 Biomedical Applications of Materials for Life Sciences (3) Principles of engineering materials; metals, polymers, and ceramics; methods of fabrication of components; corrosion; applications of prosthetic devices and dental materials. Prereg: Chemistry 1110-1120 or equivalent. 3 hrs. and 1 lab. S.


3710 Metallurgical Applications in Manufacturing Technology (3) Fabrication methods and principles of mechanical/thermal processing for finished and semifinished materials; casting, powder metallurgy; plastic forming, joining, heat treatment. Prereg. 2110.

4010-20 Thesis Projects (3-6-3-6) Investigation and report on metallurgical engineering problem.

4230 Project Laboratory (3) Group or individual investigation of metallurgical engineering problem. Prereg. Consent of instructor. F.

4240 Engineering Materials Design III (3) Property control through composition, heat treatment, and thermal processing; control of residual stresses. Prereg: 3210 or equivalent. 3 hrs. and 1 lab. W.

4250 Design and Analysis (3) Design and laboratory sessions on analysis of materials requirements and performance in engineering structures and components. Prereg: Senior standing.

4510 X-Ray Diffraction and Its Applications (4) Lectures and laboratory work in the basic principles and applications of x-ray diffraction from materials. Diffraction theory, powder technique, precision lattice constants, mechanical and phase identification, preferred orientations. Prereg: Chem. Engr. 3420. 3 hrs. and 1 lab.

4540 Fracture-Safe Design (3) (Same as Engr. Sci. and Mech. 4540)

4730 Mechanical Metallurgy I (4) Elastic behavior: Stress; strain and stress-strain relations, plane stress vs. plane strain loading; failure by yielding; strain concentration and notch sensitivity; ductile fracture; brittle fracture due to geometry and loading rate. Prereg: First course in Materials Science and Engineering. Prereg: Sophomore standing for Mechanical, Eng. and Science students.

4740 Mechanical Metallurgy II (4) Fracture due to metallurgical and environmental factors; fatigue, residual stresses; creep and stress rupture; effect of microstructure; finite plastic strain and plastic stress-strain relations; fabrication by forging, rolling, deep drawing; formability testing. Prereg: 4730 or M.E. 3651. W. S. St. Prereg: Sophomore standing for Mechanical, Eng. and Science students. W.

4760 Casting and Welding (3) Principles and procedures of casting and welding: heat transfer, solidification, segregation, gas entrapment, defects, thermal treatments, associated stresses. Prereg: 3120 or 3220. 3 hrs. or 2 hrs. and 1 lab.

Graduate Consult the Graduate Catalog for listing of graduate level courses.

Polymer Engineering (805)

4230-40 Project Laboratory (3,3) Laboratory investigation of polymer engineering problem. Written report required for each quarter.

4910 Applied Polymer Science (3) First course in physical and functional aspects of polymer science. Types and mechanisms of operation of macromolecules and their properties. Prereg: Senior standing in engineering or science. Not for graduate credit by polymer engineering majors.

4920 Polymer Processing (3) Rheological properties of polymers and melts; addition and solution polymers; processing operations of fiber, plastics, and rubber industries; dimensional analysis and scale-up, flow through dies and pipelines, screw extrusion, spinning of fibers, injection molding. Prereg: Senior standing in engineering or science. Not for graduate credit by polymer engineering majors.

4930 Principles of Fiber Textile Engineering (3) Chemical and crystallographic structure of important fibers; melt, wet and dry spinning of man-made fibers; drawing and texutizing; preparation of yarn; dyeing, weaving, knitting. Emphasis on quantitative aspects. Prereg: Senior standing in engineering or science. S.

4940 Plastics Fabrication Operations (3) Lecture and laboratory course treating unit operations of plastics industry. Types and mechanisms of operation of machinery used and structure and properties of fabricated parts. Operations include extrusion, co-extrusion, injection molding including structural foam, thermforming, blow molding, rotational molding, etc. Prereg: 3220 or equivalent in engineering or science. S.

Graduate Consult the Graduate Catalog for listing of graduate level courses.

Civil Engineering

Including Environmental Engineering


Assistant Professors:
R. M. Bennett, Ph.D. Illinois; E. C. Drumm, Ph.D. Arizona; P. E., R. B. Robinson, Ph.D. Iowa State, P.E.

F. Fred N. Pettee Professor
Tenneco Professor
Cobb Professor
IBM Professor
Space Institute, Tsukuba

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 construction, 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.

Electives

The department maintains lists of acceptable technical electives and humanities/social science electives at the departmental office. Students must consult these lists prior to registering for elective courses.

MASTER OF SCIENCE AND MASTER OF ENGINEERING PROGRAMS

Graduate programs in civil engineering and environmental engineering leading to the degree 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) Measurement 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. lecture 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 alignment of transportation routes, specifically covering simple, compound, reverse and parabolic curves and spirals. Earthwork computations. Prereq: 2260.

2510 Computer Application in Civil Engineering (3) Computer solution of civil engineering problems involving single variable equations and systems of linear, non-linear and differential equations. Emphasis on students' ability to program introduction to microcomputers. Coreq: Math 2860.

3210 Stresses in Framed Structures (3) Reactions, moments, shears, and stresses in trusses and framed structures from fixed loads; influence lines and reactions, member forces, and shears. Prereq: Engr. Science Mech. 3311.

3220 Design of Framed Structures (3) Selection of rolled beams; design of compression and tension members for axial and combined bending stresses. Prereq: 3210, coreq: 4410.


3230 Computer Applications in Civil Engineering (1) Solution of Civil Engineering problems through the use of digital computers. Prereq: Basic Engr. 1410.

3360 Surveying Practice (3) Route surveying procedures. Two 3-hr. labs. Coreq: 2960.

3400 Transportation Planning (3) Emphasis on transportation problems and 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 in design, construction, maintenance, and operation of various transportation systems. Prereq: 3110, or Forestry Summer Camp for forestry majors.


4119 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; footing and retaining walls. Prereq: 4110 and 4410.


4220 Legal and Ethical Aspects of Engineering (3) Legal principles underling engineering work: laws of contracts, torts, agency, real property; problems of professional registration and ethics.

4240 Structural Design (3) Plate girders, composite steel and concrete beams, covers, rebar detail, and design of small 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.: 2560, or Forestry Summer Camp for forestry majors.

4310 Soil Mechanics II (3) The compressibility of fine grain soils and the theory of time rate of consolidation. Shear strength of soils. Failure theories. 2 hrs. lecture and 1 lab.

4320-30 Seminar (2,1) 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 Deformations and Statically Indeterminate Structures (3) Deformations of beams and trusses; analysis of statically indeterminate beams, trusses, bents, and frames. Coreq: 4410.

4420 Analysis of Framed Structures (3) Maximum stresses due to moving loads; use of influence lines; lateral forces due to earthquake and wind; analysis of portal frames, 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; creating land divisions, and to prepare plots; laws of land surveying. Prereq: 2260 or equivalent.

4510-20 Advanced Structural Design (3,3) Plastic design of steel, concrete, and wood members of indeterminate frames. Design of typical short span steel bridge girders. Prereq: 3230 for 4510; 3230 and 4110 for 4520.


4560 Stabilization of Soils (3) Mechanical stabilization of soils by compaction, drainage, and blending; chemical stabilization of soils with admixtures; waterproofing and modifying soils and additives. 2 hrs. of lecture and 1 lab. Prereq: 3310.

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: 2360, 3500 and 3610.

4620 Airport Planning and Design I (3) Emphasis on airport master planning. Included for consideration on the area side are the runway configuration, capacity, geometrics, and lighting; and on the land side are terminal layout and design, and ground access systems and parking. Prereq: 3500, 3610.

4640 Traffic Engineering (3) Characteristics of driver, vehicle, and roadway and their interrelationship; traffic studies; basic considerations of traffic circulation and control. Emphasis on 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 facilities 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 mix design, non-destructive concrete evaluation testing, use of concrete admixtures. 2 lectures and 1 lab. Prereq: 3710.

4720 Asphalt and Bituminous Concrete (3) Properties and mixdesign mix design of asphaltic mixes, mix design and bituminous concrete. Emphasis on use of asphalt in construction projects. 2 lecture 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 and Mechanics 4860.)

4860 Structural Wood Design (3) Application of structural design concepts to structural members of various combinations of wood products. Beams, columns, and diaphragm construction with plywood are covered. Sound design of sawn timbers and materials. Prereq: 3230.

4900 Civil Engineering Systems Design and Management (3) Introduction to basic systems engineering concepts within civil engineering context; discussion of the development of principles 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
Consult the Graduate Catalog for listing of graduate level courses.

Environmental Engineering (344)

4120 Hydraulics (3) Application of basic and developed principles of hydraulics. Flow measurement; flow in open conduits; uniform and nonuniform open channel flow; flow in pipes; basic hydraulics; flow similitude and models. Two lectures and one 3-hr. lab. Prereq: Engr. Mech. 3110.


3520 Engineering Aspects of Air Pollution and Solid Waste Systems (3) Engineering aspects of solid waste and air pollution systems. Specifically, quantifiable capabilities will be developed related to management, generation, collection, treatment and disposal of solid wastes and air pollutants. Prereq: Math 2860.

4000 Environmental Protection (3) A rationale is developed for managing water resources, bodily wastes and wastewater, solid waste systems, contaminant and composting, flow similitude and models. Two lectures and one 3-hr. lab. Prereq: Engr. Mech. 3110.


4150 Urban Water Management (3) Introduction to urban water modeling; evaluation of optimum urban water policies; formulation of system constraints and analysis of design and operational management of storm water for beneficial use. Prereq: 3330.

4210 Water Resources Engineering Design (3) Planning and design of a multipurpose dam project, including reservoir, dam and drainage control works. Considerations of dam safety and environmental impact. Computer applications. 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 multiple objective optimization problems; regulation and new water resource development 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 systems; unsteady surface runoff and streamflow modeling; urban peak runoff design using kinematic wave theory; evaluation of effects of land-use changes on steam 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.

4520 Elements of Water and Wastewater Treatment Systems Design (3) Introduction to unit operations and unit processes for water and wastewater treatment; biological and chemical treatment of water and wastewater. Application of unit operations and processes in design of water and wastewater systems. Prereq: Engr. Sci. and Mech. 3110 or consent of instructor.

4525 Water and Wastewater Treatment Plant Design (3) Detailed process design of water and/or municipal industrial wastewater treatment plants; sludge handling systems; kinetic and rate-based 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, fixation, resource recovery, and proposed new technologies; current and future regulations. Prereq: Junior standing.

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, recent 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
Consult the Graduate Catalog for listing of graduate level courses.

Electrical Engineering (320)

Professors:
W. L. Green (Head), Ph.D. Texas A & M; I. Alexeff, Ph.D. Wisconsin, P.E.; J. M. Bailey, Ph.D. Georgia Institute of Technology; A. O. Bishop, Jr., Ph.D. Clemson; T. V. Blaiklock, Ph.D. Tennessee; R. E. Bodenheimer, Ph.D. Northwestern; D. W. Boudinot, Ph.D. Vanderbilt; R. C. Gonzales, Ph.D. Florida; J. M. Googe, Ph.D. Georgia Institute of Technology; P. E. E. L. Hall, Ph.D. Missouri; G. W. Hoffant, Ph.D. Harvard; J. C. Hung, Ph.D. New York; P. E. J. Kennedy, Ph.D. Tennessee; P. E. W. O. Lettiell (Emeritus); M. S. Tennessee; H. P. Neff, Ph.D. Auburn; P. E. M. O. Pao, Ph.D. Georgia Institute of Technology; J. F. Pierce, Ph.D. Pittsburgh; A. S. Rochelle, Ph.D. Maryland; J. H. Roth, Ph.D. Clemson; B. Smith, Jr. (Emeritus); C. S. Illinois; P. F. S. Symonds, Ph.D. Nottingham; N. England; J. D. Tillman, Jr., Ph.D. Auburn; C. H. Weaver, Ph.D. Wisconsin, P.E.

Associate Professors:

Assistant Professors:
D. Brzakovic, Ph.D. University of Florida; R. D. Josephs, Ph.D. Case Institute of Technology.

Assistants:

Halliburton Professor
IBM Professor
On Leave of Absence
Distinguished Professor
Weston Fulton Professorship
John Fishy Young Professorship
Tenneco, Inc. Professor
Space Institute, Tullahoma

UNDERGRADUATE
The Bachelor of Science in Electrical Engineering is planned to provide a foundation in both the basic sciences and specialized areas of modern engineering. The curriculum also contains a suitable amount of cultural work to enhance the growth of the student toward the goal of becoming a professional person with strong social awareness. In the senior year the student may specialize in any one of the following areas of electrical engineering: bioelectric engineering, computer engineering, electromagnetic fields and communications, electronics and instrumentation, energy conversion and power systems, plasma and electro-optics engineering, and systems and networks. All of these areas except the bioelectric engineering option are continued through the M.S. and Ph.D. programs. The senior year curriculum is sufficiently flexible to allow a student to take several courses outside of the chosen area of specialization.

Generally, all junior level courses are offered every quarter and the senior work is scheduled so that the student may enter at the beginning of any quarter. This arrangement allows maximum flexibility, since the student may elect the normal four-year schedule, may choose to graduate in three calendar years, or may take the Cooperative Engineering Program. In addition to the usual research and teaching faculty, some are engaged in electronics, microwaves, solid state devices, and control equipment, the department has both digital and analog computers.

PROGRESSION TO UPPER-DIVISION STATUS
Progression of electrical engineering majors to the upper-division programs of the department is competitive and is based on the space available in the department. Factors considered in the decision include overall 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 departmental programs as exemplified by regular and orderly progress through the prescribed curriculum without abuse of withdrawal and course repeat privileges.

Students will be evaluated during the quarter registered 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 are not accepted into 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 in the evening.

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 with a major in electrical engineering is offered. The department also participates in the engineering science doctoral program.

General policies of the Graduate School, residence, language, research, examination, and admission to candidacy requirements are explained in the Graduate Catalog.
3120 Basic Electrical Engineering—Electronics (3) E.

3010 and 3040. 3 hrs. including biweekly lab. E.

3180 Plasma I (3) Engineering applications of physical electronics, plasma effects and devices. Topics include electrostatic ion plasmas and plasma light sources, laser operation and applications (electro-optics), and MHD, controlled thermonuclear, and other devices and techniques of advanced power production. 3 hrs. including biweekly lab. Prereq: Physics 2310-20-30. E.

3720 Linear Systems Analysis (3) Steady-state and transient response; log-frequency, gain-phase, and polar plots; block diagram transformation; signal flow graph; analogous systems, properties of second order system; introduction to feedback theory; stability criteria. Prereq: 3010 and Math 3150; coreq: 3180. 3 hrs. including occasional labs. E.

3810 Basic Electronics I (3) (Hand theory fundamentals; theory and applications of p-n junctions; simple power supplies; theory of operation of field-effect transistors and applications in simple circuits. Prereq: 2030. 3 hrs. including project laboratory. E.

3820 Basic Electronics II (3) Physical operation of bipolar transistors and vacuum tubes with applications in basic amplifiers. Integrated circuit fundamentals. Prereq: 3810. 3 hrs. including project laboratory. E.

3830 Basic Electronics III (3) Frequency and transient response of simple amplifiers. Fundamentals of integrated-circuit operational amplifiers and applications in basic feedback configurations. Prereq: 3820. 3 hrs. including project laboratory. E.

4020 Direct Energy Conversion (3) Background physics; conversion devices including photovoltaic power sources, thermoelectric generators and heat pumps, magnetohydrodynamics, fuel cells, and related aspects of dc-ac inversion and energy storage. Prereq: 3810, 3890.

4080 Microwave Circuits and Electronics (3) Scattered wave description of circuits, to include isolators and amplifiers, couplers and power dividers, circulators, phase shifters, loading and interconnection of systems. Power generation and amplification by vacuum devices and integrated circuits. Microwave switching, filtering and multiplexing. Prereq: 3060. 3 hrs. including bi-weekly lab.

4090 Propagation II (3) Metal tube, dielectric rod, and waveguide antennas, radiator design and other loading components. Design of structures utilized for microwave power transmission and for microwave integrated circuits. Prereq: 3060. 4 labs.


4210 Introduction to Artificial Intelligence (3) (Same as Computer Science 4210.)


4370 Introduction to Feedback System Design (3) Mathematical formulation of control systems; steady-state error and error constants; root-locus methods; optimum gain adjustment; compensation networks; introduction to compensation. Prereq: 3620. Lab optional.

4381 Introduction to Applied Modern Control Theory (3) Project-oriented course stressing applications of optimal control theory. Topics include state-space representation of systems, controllability and observability, feedback and state estimation and the Hamilton-Jacobi equation for deterministic systems.


4630 Digital System Organization and Design (3) System organization of digital systems including microcomputers and microprocessor architectures and comparisons. Characteristics of ALU and CPU structures, storage systems (RAM, ROM, and PROM building blocks), and input/output systems. Control Unit organization to include serial-parallel modes of operation, synchronous-asynchronous time sequencing, and microprogramming of control functions. Prereq: 3180. 3 hrs. including biweekly lab.

4650 Digital Computer Architecture (3) Computer design and computer programming. Computer organizations and architectures, computer software, instruction set, and processor organization. Prereq: 3830. 3 hrs. including biweekly lab.

4680 Electric Amplifiers (3) Feedback amplifier principle. Wideband linear amplifiers. Audio and radio-frequency power amplifiers. 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, flip-flops, registers, counters, memories, analog-to-digital and D/A conversion, clipping, clamping, and sweep circuits. Prereq: 3830, 3180. 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 performance from equivalent circuit models for round rotor, 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 generalized theory of electrical machines. Prereq: 3690.

4790 Controllable Motor Drives (3) Constructional features and design parameters. The usual variations of the d.c. motor; A.C. servomotor; stepping motor; development of transfer functions and examples of their application in control system. Prereq: 3090.

4800 Hardware-Software Interface in Minicomputer and Microprocessor System Design (3) Minicomputer-processor interface design. Hardware-software interaction and trade-offs. Priority interrupt structures. Telecommunications. Project-oriented, 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 analysis and design of discrete data control systems using frequency-domain techniques. Sampling, 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, and its applications to pattern recognition and adaptive machines. Typical applications of pattern recognition to problems of practical significance. Computer simulation of elementary pattern recognition problems. 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 coding, storing, and processing images by means of digital computers. Computational algorithms for image operations. Prereq: 3160 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 computers, input-output techniques, interrupt 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 Problems (3,3,3) Problems in electrical engineering involving library and experimental research.

GRADUATE

Consult the Graduate Catalog for listing of graduate level courses.

Engineering Physics

Professor W. M. Bugg (Head); Physics staff as shown on page 197.

The curriculum in engineering physics is designed to fulfill the educational requirements for professional work in various fields of applied science which are based upon a thorough knowledge of physics. The first two years are concerned with fundamental courses in engineering, science, and mathematics. In the upper division, the curriculum allows some choice of courses in engineering and in physics depending upon the interest of the student. The undergraduate program is a complete, professional program, equipping the student for entry into a variety of work in industry and research. The program also leads to graduate work in either physics or engineering.

The courses in the engineering physics curriculum are shown in tabular form on page 121. Descriptions of the physics courses are found on page 198.

Engineering Science and Mechanics

Professors:


Associate Professors:


BACHELOR OF SCIENCE PROGRAM

The curriculum in engineering science provides students an opportunity for education which may be of direct use in engineering development and research, professional education at the M.S. level, or additional graduate studyleading to the master's or the doctoral degrees. The curriculum provides students a broad engineering education which permits a strong emphasis on engineering principles and basic science.

In the first two years students in the engineering science program study engineering, science, and mathematics. The engineering science program in the upper-division years is essentially an elective curriculum which provides for those special interests of students that cannot be accommodated in other programs. Examples of special interest elective groups presently available in the engineering science program are biomedical engineering, engineering mechanics, engineering analysis and synthesis, environmental sciences, engineering materials, and non-destructive evaluation. Other elective groups are being developed and will be available in the future.

The biomedical engineering elective group provides the basic background for an engineer to contribute to the fields of biology and medicine in such technical areas as the design of research and diagnostic equipment, the development of artificial organs, and the application of the engineering sciences to further the basic understanding of biological systems. With some modifications, the program can emphasize other areas such as the use of computer systems to automate hospital operations, analyze medical data, and contribute to the broad area of health care delivery systems. Interested and qualified students may choose to use this program as a background for graduate study in engineering or the life sciences. The program includes the courses required for entrance into most medical schools, including The University of Tennessee Center for the Health Sciences in Memphis.

The engineering mechanics elective group focuses on analytical, computational techniques, and experimental methods used in investigating the interaction of forces and matter. It is designed especially to develop engineers capable of engaging in research and development in industrial and governmental research laboratories. Because such preparation involves emphasis on the link between the basic sciences and engineering fundamentals, the engineering mechanics elective group provides a good theoretical background for students wishing to pursue engineering graduate studies.

The engineering analysis and synthesis elective group affords a concentration on the application of such fundamental mathematical techniques as numerical analysis and similitude for the solution of practical engineering problems. As such, heavy emphasis is placed on the use of digital computer techniques.

The environmental sciences elective group provides the opportunity for the student to apply engineering principles to the solution of environmental and ecological problems. This program gives the necessary background to achieve a high level of...
competence in professional practice or graduate study.

The engineering materials elective group provides background in the use of materials in designing solutions to engineering problems. This includes the selection of the proper materials to support the anticipated loads during the design life of the structural system. There is a special need in industry for individuals with background in both stress structural analysis and materials properties. The engineering materials elective group provides the student an opportunity to acquire this background.

The new non-destructive evaluation elective group provides background in the application of techniques for evaluating material properties and determining material flaws. Demand for this background is increasing in high technology industries. Techniques studied include ultrasonics, X-rays, dye penetration, photoelasticity.

The basic engineering sciences curriculum offers an opportunity to study significant blocks of the engineering science areas recognized by the American Society for Engineering Education such as (1) mechanics; (2) electrical science, 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; and (7) environmental sciences. No student will fulfill all the elective course requirements 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 advisor, a statement of objectives and a course plan for the upper-division years.

For students with more than 90 quarter hours, this course plan must be filed with the Office of Admissions and Records before they can register for additional courses, and before a senior standing sheet can be prepared.

Masters 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 courses are developed to meet individual needs or interests. Each applicant is 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 must comply with 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 engaged in research, development, or professional 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 best be met by interdisciplinary study in engineering science. Course offerings and research activities are also intended to meet the needs of students who seek preparation for employment in engineering areas requiring specialization in mechanics, or in related interdisciplinary studies.

General policies of the Graduate School relating to admission, residence, examinations, and research are described in the Graduate Catalog.

Engineering Science and Mechanics (335)

2720 Dynamics (3) Absolute and relative kinematics of rigid bodies; kinematics of rigid bodies using Newton's laws, work-energy, and impulse momentum. Prereq: Basic Engr. 2110.

3010 Seminar (1) Discussions of engineering professionalism. Field trips and career planning. 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 flow. Must be taken in sequence. Prereq: 2720 or 3700, Math 2840, coreq for 3110: Mech. Engr. 3311 or equivalent.

3310-20 Mechanics of Materials (4) Concepts of stress and strain, stress strain relations, and Mohr's circle; stresses and displacements in Timoshenko beams, shafting, fracture; determinate, indeterminate, and non-homogeneous 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; stresses and displacements in Timoshenko beams, shafting, fracture; determinate, indeterminate, and non-homogeneous beams; column theory. Must be taken in sequence. Prereq: Basic Engr. 1310; coreq: Math 2840.

3410 Introduction to Biomedical Engineering (4) Introduces the facets and opportunities of biomedical engineering, and provides basic terminology and background knowledge for those entering in the field. Subjects include anatomy, physiology, biomaterials, mathematical models of body systems, etc. Coreq: Math 2840 or consent of instructor.

3420 Introduction to Clinical Engineering (3) Introduces students to the clinical/hospital setting; description, analysis, and design of health care delivery systems; hospital organization and structure; clinical use of biomedical equipment; principles of safety engineering in the hospital and applicable codes, standards and regulations. Prereq: 3410, Physics 2320, or consent of instructor.

3510 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 Must be taken in sequence. Prereq: Basic Engr. 1320, Math 2840.

3700 Dynamics (4) Kinematics of rigid bodies; mass moments of inertia; coolsbarm friction; kinetics of rigid bodies using force, mass, acceleration; work-energy; impulse-momentum. Not for departmental graduate credit. Prereq: Basic Engr. 1320, Math 2840.

3710 Intermediate Dynamics (3) Three-dimensional dynamics of particles and rigid bodies; dynamics of bodies with varying mass; central force motion; Lagrange's equations. Prereq: 2720 or 3700, Math 2850.

4010 Project in Design and Development (4) Investigates, design, and report of an engineering science project. Prereq: Senior standing and a grade of C or better in 3311, 3700, and 3110.

4200 Computer - Aided Design (3) Use of computer graphics and analysis software to develop engineering systems, structures, and components. Evaluation of design alternatives. Prereq: 4810 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 hemolysis, thrombosis, and fluid dynamics of 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 prostheses, 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. The effects of residual stress and environment on the fracture resistance of materials. Prereq: 3311 or 3312.


4560 Principles of Non-destructive Testing (3) (Same as Physics 4560.)

4610 Experimental Stress Analysis (3) Basic concepts: theory, techniques, and instrumentation of experimental stress analysis. 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; oscilloscopes, oscillographs, spectrum analyzers, magnetic recording; temperature, pressure, vibration, and force sensors; multiparameter data transmission; data processing. Prereq: 3311, 4710, Elec. Engr. 3120. 3 hrs. and 3-lab.

4630 Introductory Photomechanics (3) Introduction to photoelasticity, photoelastic coating method, More light scattering, acoustic microscopy. Prereq: 3311, Physics 2320. 2 hrs. and a 3-lab.

4710 Fundamentals of Vibration (3) Free and forced vibrations of damped and undamped lumped parameter systems; energy methods. Prereq: 2720 or 3700, Math 2840.


4910-20 Engineering Analysis (4,3) Integration of fundamental physical laws and mathematical methods of analysis with emphasis on application to realistic engineering problems. Prereq: 3110, 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.
GRADUATE Consult the Graduate catalog for listing of graduate level courses.

Industrial Engineering (556)


Associate Professors: D. H. Hutchinson, Ph.D. Georgia Institute of Technology; K. E. Kirby, Ph.D. Tennessee.

Assistant Professors: M. K. Goodman, M.S. Tennessee, P.E.; J. C. Hungerford, Ph.D. Ohio State.

Instructor: D. D. Ford, M.S. Tennessee.


1IM Professor.
2Part-time.
3Space Institute, Tullahoma.
4On leave.

UNDERGRADUATE

The undergraduate curriculum in industrial engineering provides a strong background in both fundamental engineering principles and the analytic methods necessary for solving the multi-faceted problems associated with the production, maintenance, and delivery of goods and services. In particular, this 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 base in 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 systems planning, space systems, research groups, and government as well as in the traditional area of manufacturing.

MASTER OF SCIENCE PROGRAM

A graduate program leading to the degree of Master of Science is open to graduates of A.B.E.T. accredited undergraduate curricula in Industrial Engineering or to graduates of other technical curricula who take an approved list of prerequisite course work. A non-thesis option with 46 hours of course work plus a 3-hour project is available.

Graduate work in Industrial Engineering provides for concentrations in operations research, engineering management, manufacturing and production systems, human factors engineering, information systems, reliability and quality control and traditional industrial engineering. Either one or two minors can be elected in Engineering, Mathematics, Technology, Business, or Computer Science. Statistics or Economics.

MASTER OF ENGINEERING PROGRAM

This professional degree program is intended as a culmination year in a five-year baccalaureate—master program which emphasizes engineering design and professional practice. Admission requirements include those presented above plus the requirement of a Bachelor's degree from an A.B.E.T.-accredited Industrial Engineering program. This 48—quarter hour program requires 18 hours of course work in an industrial engineering core, 9 hours of technical methods electives, 9 hours of industrial engineering design electives and 9—hour thesis or design project.

2310 Seminar (1) Introduction to the industrial engineering profession, its history, and current trends. Plant trips and lectures by the faculty. Prerequisite: Sophomore standing.

2320 Modeling of Industrial Processes (3) Introduction to modern industrial process design and planning methods. Prerequisites: 2310.

2350 Introduction to Operations Research I (3) Introduction to operations research and its applications in the design of manufacturing systems, transportation systems, work sampling, and other decision making processes. Prerequisite: Math 1860.

2390 Introduction to Operations Research II (3) Introduction to probabilistic methods in operations research, including statistical inference, decision theory, and queuing theory. Prerequisite: 2350 and Computer Science 3460.

2420 Principles of Engineering Economy (3) Methods and techniques for the analysis of economic alternatives. Prerequisite: Math 1860.

2430 Introduction to Operations Research III (3) Introduction to probability and statistical theory, and applications in operations research. Prerequisite: Math 1860.

2440 Manufacturing Operations (3) Methods and techniques for the analysis of manufacturing processes. Prerequisite: Math 1860.

2450 Control Systems (3) Design and analysis of control systems using both classical and modern techniques. Prerequisite: Math 1860.

2460 Quality Control (3) Application of statistical methods to quality control of manufactured products. Prerequisite: Math 1860.

2470 Computer Applications and Analysis Methods in Industrial Engineering (3) Use of digital computer in problem solving involving matrix operations, deter- ministic and stochastic simulations, large scale data base manipulation, and general optimization techniques. Prerequisite: Math 1860.

2480 Forecasting Methods in Industrial Engineering (3) Methods and techniques for the analysis of economic alternatives. Prerequisite: Math 1860.

2490 Management Science (3) Methods and techniques for the analysis of economic alternatives. Prerequisite: Math 1860.

2560 Introduction to Operations Research IV (3) Advanced topics in operations research, including statistical inference, decision theory, and queuing theory. Prerequisite: 2350 and Computer Science 3460.

2570 Introduction to Operations Research V (3) Advanced topics in operations research, including statistical inference, decision theory, and queuing theory. Prerequisite: 2350 and Computer Science 3460.

2600 Motion and Time Study (3) Study of motion and time study, including analysis, measurement, and determining standards. Laboratory work included. Prerequisite: Junior standing.

2610 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. Prerequisite: Junior standing in College of Engineering consent of instructor.
lems in selection or replacement of equipment. Deci-
sions among engineering alternatives involving capital
and operation costs have a major effect on the life of equipment, and rate of
return of investment.

4530 Case Studies in Engineering Economy (3) Ext-
ension of basic engineering economy principles to actual
problems faced by competitors in regulated industries.
Case studies taken from literature and form basis of
classroom discussion. Out-of-class assignment
involves working with local companies to evaluate
make or buy options, leasing versus purchase, equip-
ment replacement studies, energy source econom-
ies, etc. Prereq: 4520.

4540 Industrial Development (3) Factors other than
mechanical or chemical which enter into successful
industries and promote growth of manufacturing enterprises. 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. Simu-
lation as design tool in industrial systems. Prereq:
3435 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 applica-
tion. Prereq: 3630.

4610 Human Factors in Work Design II (3) Human
compatibilities and limitations affecting work pro-
cedures, working environments, design of tools and
equipment, and communications in response to man-
machine systems. Prereq: 3620, 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
engineering principles and techniques. Prereq: 3620.

4840 Industrial Plant Problems Analysis (3) Indus-
trial problems, application of industrial engineering; field
assignment in local industry, problem definition, analy-
sis, and presentation. Prereq: 3530, 3440, 3510,
3520, 4520, 4860.

4870 Mini-Computer Applications in Industrial Engi-
neering (3) Introduction to computer hardware and
man-computer interfaces; emphasis on small com-
puters as an element of larger system; applications
and limitations of small computers in solving industri-
al engineering problems. Prereq: Senior standing.

4910-20-30 Special Industrial Engineering Topics (3,3,3)
May be repeated for credit. Prereq: Consent of in-
structor.

4950 Industrial Safety (3) Development of organiza-
tion and application for control of industrial acci-
dents with emphasis on OSHA Rules and Regulations.
Prereq: Senior standing.

GRADUATE
Consult the Graduate Catalog for listing of graduate level courses.

Mechanical and
Aerospace Engineering

Professors: D. R. Pitts (Head), Ph.D. Georgia Institute of Tech-
nology; J. F. Bailey (Emeritus), Ph.D. Lehigh, P.E.;
G. W. Braun1, (Emeritus), Ph.D. Gottingen; F. G.
Collins1, Ph.D. California (Berkeley), P.E.; A. J.
Edmondson, Ph.D. Texas; A. M. P.E.; W. Frost1,
Ph.D. Washington; G. W. Garrison1, Ph.D. North
Carolina State University; B. H. Goethert1 (Emeri-
tus), Ph.D. Berlin (Germany); K. E. Hanwe1, Ph.
California Institute of Technology, P.E.; W. H.
Heiser1, Ph.D. Massachusetts Institute of Technol-
gy. P.E.; W. E. Hopps Institute of Technology, P.E.;
R. W. Holland, M.S. Tennessee, P.E.; S. S. Johnson,
Ph.D. Clemson, P.E.; E. G. Kukuck, Ph.D. Okayama State,
Ph.D. Oklahoma; M. Kuosa1ka, Ph.D. California
Institute of Technology, P.E.; H. Liston, Jr., (Vice
President); M. A. V. M. E. Georgia (Atlanta); R. L. Dost

1Space Institute, Tullahoma.
2Tenneco Professor
3IBM Professor

BACHELOR OF SCIENCE PROGRAM

Separate, complete curricula are offered in aerospace engineering and mechanical engi-
neering; however, the first two years of these curricula differ. During the first two
years, the curricula provide for training and study in the basic sciences of physics,
mathematics, chemistry, and engineering common to both fields. The third year of
both programs continues with the develop-
ment of the particular engineering sciences of the aerospace and mechanical engineer-
ing fields. In the senior year an opportunity is provided for the student to apply this fun-
damental knowledge to mechanical and aerospace engineering problems. Both cur-
ricula are arranged with flexibility in the upper-division years to permit emphasis on
preparation for graduate study or technical employment.

Aerospace engineering has scientific foun-
dations close to those of mechanical
engineering. The aerospace engineer, how-
ever, devotes attention particularly to the
research, design, testing, and production of aerospace vehicles—aircraft,
spacecraft, missiles; auxiliary systems—
heating, cooling, guidance, control; and pro-
pulsion systems—diesel engines, turbo-jets,
ramjets, and rockets. Emphasis in the senior
year is directed toward these topics and the
program culminates in a major aerospace design project.

Mechanical engineering has its foundation in the
basic sciences and requires an under-
standing of such areas of applied science as solid and fluid mechanics, thermodynamics,
heat transfer, structures, vibrations, mechanical
design, manufacturing, and the design and
analysis of machine elements and systems.
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
advisor, must select a senior year program of mechanical engineering and technical
electives. The following areas of concentra-
tion are available:

Energy, A study of energy conversion

College of Engineering 131

systems and the laws governing energy transformation. This area 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. Possible topics include 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. 4710-20-30.

Manufacturing. A study of manufacturing methods and production processes common to mass production industries. The study areas include 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 applica-
tion of the principles of mechanics, materials, and manufacturing processes to the design and analysis of machine ele-
machines, and structures. The central courses are Mech. Engr. 4680 and 4690.

Propulsion. The study of propulsion devices for ground vehicles, aircraft, and
spacecraft. The topics include the analysis and design of internal combustion engines, gas turbines, jet and ramjet 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 mechanisms of flight
and related systems and propulsion devices. Key elements include the analysis and
design of a variety of aerospace vehicles and systems. The central courses are Aero.
Engr. 4240-50-60.

PROGRESSION TO UPPER-DIVISION
PROGRAMS

Progression to Upper Division Programs is competitive and is based on departmental
capacity. Factors considered include overall grade point average, the selection of lower division courses, and evi-
dence of satisfactory and orderly progress through the prescribed curriculum.

Full Status: A Lower Division student in the department may apply for progression to Upper Division Programs after completing 81 quarter hours of Lower Division engineer-
ing curriculum course work with an overall GPA of at least 2.4.

 Provisional Status: Students who have completed 81 quarter hours of Lower Divi-
sion engineering curriculum course work with an overall GPA between 2.0 and 2.4
may apply for provisional status. The grant-
ing of Provisional Status is based on the availability of space in departmental pro-
grams after Full Status students have been accommodated. Provisional Status students are required to demonstrate their abilities to perform satisfactorily in Upper Division courses by attaining a minimum GPA of 2.0 in at least 12 hours of 3000 level required engineering courses (including 9 specified hours in the department). Further prog-
resion 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 Engr. and Aero Eng. 2040. Students who have not been progressed to an Upper Division Program will be dropped from departmental class rolls.

TRANSFER STUDENTS at the Upper Division Stage must have a Professional Status basis only. Any student presenting more than 42 hours of Lower Division engineering course work by Transfer Credit is considered a Transfer Student.

LOSS OF FULL STATUS

Students who progress 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 Full Status.  

GRADUATE STUDY PROGRAMS

Graduate programs leading to the degrees of Master of Science 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 (560)

3040 Introduction to Mechanical Engineering (1) Presentation and discussion of topics related to mechanical engineering. S/NC. F, W, S.

3040 Seminar (1) Presentation and discussion of topics related to mechanical engineering. Prereq: Junior standing.


3311 Engineering Thermodynamics (3) Energy and laws governing energy transformations; thermodynamic properties; applications to engineering problems. Prereq: Basic Eng. 1330, Chem. 1130, and Math 2840. E.

3321-30 Engineering Thermodynamics (2,3) Properties of gases and gas mixtures; chemical reactions; equilibrium; applications to mechanical engineering problems. Prereq: 3311 and 3321 respectively. E.

3410 Fluid Flow (3) Development of continuity, momentum, and energy principles for fluid systems; applications to mechanical and aerospace engineering problems. Prereq: Math 2850, coreq: 3311. F, W, S.


3520-30-40 Thermal Sciences (3,3,3) Fundamental principles of thermodynamics and transport phenomena related to heat exchanger design. For non-departmental majors. To be taken in sequence. Prereq: Math 2850 and Basic Eng. 1330. E.


3620 Mechanics of Machinery—Dynamics (3) Applications of Newton’s laws, work, energy, and impact to machinery. Force analysis of mechanisms, balancing, gyroscopic effects, fly-wheels. Prereq: 3610. E.


3660 Manufacturing Processes (3) Selection of processes as related to the design of machine parts. Casting, hot and cold forming, metal removal, and welding. Manufacturing tolerances and surface finishes. 2 hrs. and one 2-hr. lab. Prereq: Met. Engr. 2110. E.

3910 Engineering Analysis (3) Advanced analytical techniques for problems of aerospace and mechanical engineering. Emphasis on approximate methods. Prereq: Computer Science 3150. E.

4010 Thesis (3) Problem investigation and report. Prereq: Senior standing. E.

4140 Energy Conversion Systems (3) Operating and design characteristics of energy conversion systems including new technology development; selected direct conversion techniques. Prereq: 3330; coreq: 4420. E.

4150 Energy Conversion Systems (3) Fossil fuel energy conversion systems with emphasis on coal technology. Prereq: 4140. A.

4160 Design of Energy Conversion Systems (3) Synthesis and analysis of complete energy conversion system including economic and technical aspects. Participation in team design effort including formal presentations and design report. Prereq: 4150 and Ind. Engr. 4520. E.

4170 Turbo-Machinery (3) Basic principles of turbo-machinery; systematic methods of analysis, design, performance evaluation. Prereq: Aerosop Engr. 3511.

4180 Energy Production and Utilization (3) Thermodynamic constraints on energy sources and concepts; energy conservation schemes. Prereq: Senior standing in engineering or consent of instructor. A.

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. A.

4310 Seminar (1) Discussion of topics related to engineering; includes inspection trips to industrial plants. Prereq: Senior standing. S/NC. F, W, S.

4320 Seminar (1) Formal oral presentations by students on engineering projects of technical talks. Prereq: Senior standing. W, S.

4420 Heat Transfer (3) Heat transfer by free and forced convection, heat transfer in phase change, heat exchanger applications. Prereq: 3440; coreq: Aerospace Engr. 3511. E.

4450 Lubrication (3) Hydraulic theory of lubrication of sliding bearings; application of Navier-Stokes equations to infinite and finite bearings; analytical and numerical solutions; applications to design. Prereq: 3440, Aerospace Engr. 3511. W.

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 4420 for 4491. 4471-F, W, S; 4491-W, S.

4511-21 Systems and Controls 1 and II (3,3) Analytical and frequency response, stability analysis; non-linear components; feedback control systems, transient and frequency-domain analysis; non-linear control of linear systems; sampled data systems, digital filters. Prereq: 3630 or AE 3620. AE 3511, and Elec. Engr. 3130; coreq: 4471 for 4511. Prereq: 4511 for 4521. 4511-F, W; 4521-W, S.

4612 Manufacturing Processes (3) Comparison of machining methods; plastic production, metrology. Prereq: 3330 and 4420. E.

4622 Tool Design (3) Principles underlying tool and die design, design of high-volume production tools and molds, work holding fixtures. Prereq: 3650-40 or consent of instructor.


4210 Seminar (1) Discussion of topics related to engi-
neering; includes inspection trips to industrial plants. 
Prereq: Senior standing. S/NC. F.

4220 Seminar (1) Formal oral presentations by stu-
dents on current engineering problems. Evaluations of technical 
talks. Prereq: Senior standing. W.

4471-91 Experimental Aerospace Engineering (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: Mech. 
3320 for 4471; 4471 and Mech. Engr. 4420 for 4491. 
4471-1F: 4491-W.

4510 Airplane Performance (3) Introduction to air-
foil and wing characteristics, drag, propellers; static 
performance and maneuvers; theory and design of 
control surfaces; stability. Prereq: 3511. W.

4510 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.

4520 Selected Topics in Aerospace Science (1-4) 
Current problems and topics in aerospace science; 
topics in science and engineering required for an under-
standing of the several areas of aerospace science. 
Prereq: Consent of instructor. Title will vary.

GRADUATE
Consult the Graduate Catalog for listing of 
graduate level courses.

Aerospace Engineering (018)

2040 Introduction to Aerospace Engineering (1) Pre-
sentation and discussion of topics related to aerospace 
engineering. S/NC. F, W, S.

3040 Seminar (1) Presentation and discussion of topics 
related to aerospace engineering. Prereq: Junior standing. 
S/NC.

3511 Fluid Flow (4) Continuity, momentum, and energy 
theorems. Incompressible and compressible and flow 
in passages. Viscous losses. Includes weekly lab. 
Prereq: Mech. Engr. 3311 and 3410. E.

3610 Dynamics (3) Newton's Laws: work-energy, 
impulse-momentum, Lagrange equations, central 
gyroscope, gyroscopic effects. Applications to aerospace sys-
Engr. 3910. F.

3620 Mechanical Vibrations (3) Free and forced vibra-
tions of single and multiple degree vibrating systems, 
balancing of vibrating machinery. Prereq: 3610 and 
Mech. Engr. 3910. W.

3630-40 Structural Analysis of Aerospace Vehicles 
(3,3) Fundamentals of structural analysis as applied to 
configurations of aerospace interest. Introduction to 
structural concepts. Must be taken in sequence. 
Sci. and Mech. 3320 for 3640. A.

4010 Thesis (3) Problem investigation and report. 
Prereq: Senior standing. F, W, S.

4110 Aerodynamic Fundamentals (2) Atmosphere, 
dynamics and thermodynamics of perfect gases, fluid 
flow types, airfoil theory, wing theory, drag. For non-
aerospace engineering majors only. Prereq: Consent of 
instructor.

4120 Aircraft Propulsion and Performance (3) Pro-
pellants, propulsion systems for aircraft; static 
performance and special performance problems, maneu-
vers, control surfaces, stability, and control. For non-
aerospace engineering majors only. Prereq: 4110.

4210 Compressible flow (3) One-dimensional inter-
nal flow; shock and expansion waves; friction and 
3321. F.

4220 Low Speed Aerodynamics (3) Potential flow 
theory; kinematics and dynamics of perfect fluid; 
analysis and design of aerodynamic bodies. Prereq: 
3511 and Mech. Engr. 3510. F.

4230 Viscous Flow (3) Boundary layer theory; lami-
nar and turbulent flow; compressibility effects; numerical 
solution methods. Prereq: 3511 and Mech. Engr. 3610, 
4420. S.

4240 Astronautics (3) Propulsion, trajectories, guid-
ance, control, and atmospheric reentry of space vehicle 

4250 Propulsion (3) Principles of propulsion devices; 
turbo-jet, and rocket engines. Prereq: 4210 and Mech. 

4261 System Design (5) 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. 4520. S.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
<th>Prerequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>4840</td>
<td>Nuclear Reactor Safety (3)</td>
<td>Presentation of reactor safety concepts and criteria; credible accidents; fission product release and transport; containment systems; accident analysis; engineered safeguards.</td>
<td>4120</td>
</tr>
<tr>
<td>4930</td>
<td>Nuclear Fuel Management (3)</td>
<td>Discussion of problems associated with processing of nuclear materials; fuel cycle analysis; burn-up calculation.</td>
<td>4120</td>
</tr>
</tbody>
</table>

**GRADUATE**

Consult the Graduate Catalog for listing of graduate level courses.
Nancy H. Belck, Dean
Jay Stauss, Associate Dean, Graduate Studies and Research
Jane R. Savage, Associate Dean, Undergraduate Studies

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 better can 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 stated best 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 concerned also 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 may better 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.

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's 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. 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 and in food industries for those in the nutrition and food sciences 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
Certification in Vocational Home Economics Education

The University of Tennessee, Knoxville, is approved for teacher training in home economics. The professional curriculum in home economics education is listed on page 138.

Certification in Early Childhood Education

A joint program in Early Childhood Education—Nursery School through Grade Three—is available through the Department of Child and Family Studies (College of Home Economics) and the Department of Curriculum and Instruction (College of Education). In addition to preschool education, graduates are certified to teach kindergarten through third grade.

Educational Programs for Home Economics Extension Education

Students interested in careers as home economics extension agents have many opportunities for employment in service to rural and urban families. The Extension and Community Services option in Home Economics Education is designed for individuals interested in working in community based home economics programs such as Extension. This course of study includes a comprehensive study in all areas of home economics as well as in educational principles.

Students interested in this program should contact their advisor or the Dean, College of Home Economics.

Undergraduate Study in Home Economics

Curricula in the following areas lead to the degree of Bachelor of Science in Home Economics:

- Child and Family Studies (CFS)
  - Option 1—Early Childhood Development
  - Option 2—Human Development and Family Studies
  - Option 3—Nursery School-Grade 3

Home Economics Education

- Option 1—Vocational Home Economics Education
- Option 2—Extension and Community Services

Nutrition and Food Sciences (NFS)

- Option 1—Nutrition and Food Sciences
- Option 2—Coordinated Undergraduate Program in Dietsetics

Textiles, Merchandising and Design (TMD)

- Option 1—Merchandising
- Option 2—Textile Science
- Option 3—Apparel and Textiles

The curriculum in the following major leads to the degree of Bachelor of Science in Interior Design (ID)

The curriculum in the following major leads to the degree of Bachelor of Science in Tourism, Food and Lodging Administration

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 their particular college or school.

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, 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 in 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 into the college must have an average of 2.0 for association. Students with an average of less than 2.0 are not eligible for association with the college.

During the first quarter each student generally takes basic courses to all curricula and is assigned a faculty advisor for program planning.

A normal course load per quarter is 15-16 hours. The maximum load is 19 credit hours per quarter (18 hours for the Coordinated Undergraduate Program in Dietetics) unless otherwise approved by the Associate 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 outside their major departments under the satisfactory/no credit grading system. (Required courses may not be taken for a satisfactory/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 concern that performance may be 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. If 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.

The following courses are fundamental to home economics and are required in all curricula:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Name</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1100</td>
<td>Human Socialization</td>
<td>4</td>
</tr>
<tr>
<td>4430</td>
<td>Family Interaction</td>
<td>3</td>
</tr>
<tr>
<td>4440</td>
<td>Management in Family Systems</td>
<td>4</td>
</tr>
<tr>
<td>4470</td>
<td>Learning Experience with Parents</td>
<td>3</td>
</tr>
<tr>
<td>4610</td>
<td>Child in the Community</td>
<td>3</td>
</tr>
<tr>
<td>3515</td>
<td>Family Relationships</td>
<td>4</td>
</tr>
<tr>
<td>3570</td>
<td>Nutrition and Food Sciences</td>
<td>2-3</td>
</tr>
</tbody>
</table>

**Optional Minors**

Minors are offered in the three departments in the College of Home Economics.

- A minor in a department of this college requires a minimum of 25-29 credit hours with the majority of credit hours the 3000-4000 level. At least 12 of the credit hours required for the minor must be completed at UTK.
- Specific requirements are listed by department offering a minor and it is assumed that prerequisites to these courses will not count toward the minor.
- Minors in the College of Home Economics are open to students in home economics and students in other colleges who have approval of their advisor and their college or school.
- Minors are not recorded on students' transcripts without regard to course overlap among majors and minors.
- All courses taken for a minor as offered in the College of Home Economics must be taken for a grade unless the course is offered on a satisfactory/no credit basis.
- A student seeking a minor as offered in the College of Home Economics must declare such intention to the Dean of the college by completion of a Declaration of a Minor in the College of Home Economics form prior to completing more than one-half of the total hours required for the minor. A student seeking a minor as offered in the College of Home Economics must indicate this intention upon the application for graduation.

**Child and Family Studies**

A minor in Family Studies consists of 28 credit hours as follows:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Name</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>2110</td>
<td>Human Socialization</td>
<td>4</td>
</tr>
<tr>
<td>3515</td>
<td>Family Relationships</td>
<td>4</td>
</tr>
<tr>
<td>3570</td>
<td>Nutrition and Food Sciences</td>
<td>2-3</td>
</tr>
</tbody>
</table>

**Nutrition and Food Sciences**

A minor in Nutrition and Food Sciences consists of 24-28 credit hours as follows:

- 3005 Nature of Food I (4), 3015 Nature of Food II (4), 3120 Fundamentals of Nutrition (3), 3160 Science of Nutrition (5); and 14 credit hours selected from: 3200 Development in Infancy (3), 3210 Development in Early Childhood (3), 3220 Development in Middle Childhood (3), 3520 The Family and the Adolescent (3), and 0-5 credit hours selected from: 1500 Learning Experience with Parents (3), 4610 Child in the Community (3).

- A minor in Child and Family Studies consists of 28 credit hours as follows:

- A minor in Child and Family Studies consists of 28 credit hours as follows:

- A minor in Food Science consists of 26 credit hours as follows:

- A minor in Merchandising consists of 25 credit hours as follows:

- A minor in Merchandising consists of 25 credit hours as follows:
OPTION 2. HUMAN DEVELOPMENT AND FAMILY STUDIES

This option is for undergraduate CFS majors who want a general background in child 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 related work would choose this undergraduate option.

Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Economics 1510</td>
<td>4</td>
</tr>
<tr>
<td>Home Economics 1520</td>
<td>4</td>
</tr>
<tr>
<td>Natural science</td>
<td>12</td>
</tr>
<tr>
<td>English 1010 or 1011: 1020</td>
<td>6</td>
</tr>
<tr>
<td>English 1031 or 1032 or 1033</td>
<td>6</td>
</tr>
<tr>
<td>Mathematics 1540</td>
<td>4</td>
</tr>
<tr>
<td>Philosophy 1510 or 2510 or 2520 or 2210 or upper-division foreign language</td>
<td>4</td>
</tr>
<tr>
<td>Music 210 or Art 1815 or 1925</td>
<td>9</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
</tr>
</tbody>
</table>

Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Child &amp; Family Studies 2120</td>
<td>3</td>
</tr>
<tr>
<td>*Literature elective</td>
<td></td>
</tr>
<tr>
<td>*Nutrition and Food Sciences 1130</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 2510</td>
<td>4</td>
</tr>
<tr>
<td>Physical science elective</td>
<td></td>
</tr>
<tr>
<td>Speech 1221 or 2021 or 2351</td>
<td>3</td>
</tr>
<tr>
<td>Physical or biological science elective</td>
<td></td>
</tr>
<tr>
<td>Sociology elective</td>
<td></td>
</tr>
<tr>
<td>History or political science elective</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
</tr>
</tbody>
</table>

Junior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child &amp; Family Studies 2410 or Sociology 3150</td>
<td>3-4</td>
</tr>
<tr>
<td>Child &amp; Family Studies 3210</td>
<td>3</td>
</tr>
<tr>
<td>Child &amp; Family Studies 3220</td>
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</tr>
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<td>Child &amp; Family Studies 3510</td>
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</tr>
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<td>Child &amp; Family Studies 3515</td>
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</tr>
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<td>Child &amp; Family Studies 3520</td>
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<tr>
<td>Economics 2510</td>
<td>4</td>
</tr>
<tr>
<td>History or political science elective</td>
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<td>Philosophy or religious studies elective</td>
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</tr>
<tr>
<td>Electives</td>
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</table>

Total: 192 hours

1Courses should be chosen from: Biology 1210 or 1220 or 2220 or Botany 1110 or 1120 or Zoology 2200 or 2920. 2Courses should be chosen from: Philosophy 1510 or 1520 or 2310 or 2510 or 2520 or Religious Studies 2610 or 2611 or 2620. 3Nutrition and Food Sciences 1130 recommended. 4Courses should be chosen from: Chemistry 1110, 1510, 1610 (choose one), 1120, 1520, 1620 (choose one), or Geology 1410 or 1420 or 2210, or Astronomy 2110 or 2210, or Physics 2110 or 2210, or Physics 3120. 5Course should be any 2000-level English literature course. 6Course should be chosen from: Anthropology 2530 or 3410 or Human Services 2910, 3200 or 3300 or Psychology 2550 or 2550 or 3616 or 3625, or Sociology 1510, 1520, 3410, 3420. 7Course should be chosen from: 1000- or 2000-level history courses. 8Course should be any course in areas of anthropology, economics, geography, human services, political science, psychology, sociology. 9All students who desire teacher certification are required to apply for admission to the Teacher Education Program in the College of Education. 10Application for student teaching must be filed in the College of Education.

Professional Curricula in Home Economics Education

OPTION 1. VOCATIONAL HOME ECONOMICS EDUCATION

This teacher education program in home economics, planned 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 require-
Home Economics Education 4509 .................................. 4
Home Economics Education 4510 .................................. 2
3. CLOTHING MANAGEMENT ENDORSEMENT ............................................. 19

Textiles & Clothing 2170 ........................................ 3
Textiles & Clothing 4010 or 4120 .................................. 3
Home Economics Education 4509 .................................. 8
Home Economics Education 4510 .................................. 2

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 portions of the curriculum.

Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
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<tbody>
<tr>
<td>Chemistry 1510-20-30</td>
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<tr>
<td>English 1010 or 1011; 1020</td>
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<tr>
<td>English 1031 or 1032 or 1033</td>
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<td>Mathematics elective</td>
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<tr>
<td>Physical Education or health electives</td>
<td>3</td>
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<td>Speech elective</td>
<td>4</td>
<td></td>
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<tr>
<td>Textiles &amp; Clothing 1160</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Textiles &amp; Clothing 1170</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Textiles &amp; Clothing 1180</td>
<td>4</td>
<td></td>
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<td>Textiles &amp; Clothing 1190</td>
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\*Electives and/or supporting courses ................. 4

Sophomore

<table>
<thead>
<tr>
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<tbody>
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<td>Economics electives</td>
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<td>Psychology 2500</td>
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<td>Zoology 2920-2930</td>
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| \*Electives and/or supporting courses ................. 4

Junior

<table>
<thead>
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<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Child &amp; Family Studies 3515</td>
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<tr>
<td>Child &amp; Family Studies 3210, 3510</td>
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<tr>
<td>Educational Psychology 3810 or Child &amp; Family Studies 3520</td>
<td>10</td>
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<tr>
<td>Nutrition and Food Sciences 3020</td>
<td>3</td>
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<tr>
<td>Child &amp; Family Studies 3420 or 4830</td>
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<tr>
<td>Nutrition and Food Sciences 3020</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Interior Design &amp; Housing 3110</td>
<td>3</td>
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<tr>
<td>Rural Soc 3420</td>
<td>3</td>
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<tr>
<td>Sociology 3420</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Textiles &amp; Clothing 3420</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Textiles &amp; Clothing 3429</td>
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</table>
| \*Electives and/or supporting courses ................. 12

Senior

<table>
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<tr>
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<tbody>
<tr>
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<tr>
<td>Child &amp; Family Studies 4260 or Sociology 3690</td>
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<td>4-3</td>
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<td>Child &amp; Family Studies 4440</td>
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<tr>
<td>Interior Design &amp; Housing 4320</td>
<td>3</td>
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<tr>
<td>Nutrition and Food Sciences 4150</td>
<td>3</td>
<td></td>
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<tr>
<td>Nutrition and Food Sciences 4160</td>
<td>4</td>
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</tr>
<tr>
<td>Textiles &amp; Clothing 3170</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>
| Electives and/or supporting courses .......... 8

Total: 190 hours

**Professional Curricula in the Department of Nutrition and Food Sciences**

**Nutrition and Food Sciences Major**

Entering freshmen in Options 1 and 2 enroll as NFS majors and a departmental advisor will be assigned. Freshman interest noted in Option 2 should progress into that option by their third quarter in residence. Transfer students must apply to the Director of Admissions, be admitted to the University of Tennessee, Knoxville, and associate with the College of Home Economics prior to the declaration of a major within the department.

**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 product development and evaluation and 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 or a graduate degree with experience complete the clinical requirements. Upon completion of academic and clinical requirements, students are eligible to apply for registration examination to qualify as a Registered Dietitian (R.D.).

Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Chemistry 1110-20-30 or 1510-20-30</td>
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<td>English 1010 or 1011; 1020</td>
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<td>English 1031 or 1032 or 1033</td>
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<td>Economics 2510</td>
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<td>Home Economics 2510</td>
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<tr>
<td>Mathematics 1540-50</td>
<td>8</td>
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<tr>
<td>Psychology 2500</td>
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Sophomore

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<tr>
<th>Course</th>
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<tbody>
<tr>
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<tr>
<td>Mathematics 1540-50</td>
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| \*Electives and/or supporting courses ................. 4

Junior

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<tr>
<th>Course</th>
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<tbody>
<tr>
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<td>Nutrition and Food Sciences 3160</td>
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<td>Nutrition and Food Sciences 4190</td>
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<td>Nutrition and Food Sciences 3020</td>
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<td>Nutrition and Food Sciences 4000</td>
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<td>Nutrition and Food Sciences electives</td>
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<tr>
<td>Sociology 1510</td>
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</table>

Total: 190 hours

*Requires Math 1560 as a prerequisite.

**College of Home Economics 139**
faculty of selected pre-professional courses. The number of qualified students accepted into the Coordinated Undergraduate Program in each major is contingent on the number of clinical sites available. Criteria for progression to the professional phase must be maintained throughout the pre-professional phase.

Criteria for progression within the junior and senior professional phase years will include (1) satisfactory completion of each required professional course as scheduled with a minimum grade of C, and (2) periodic evaluation of knowledge and performance level by academic and clinical faculty. The maximum credit hours carried per quarter should not exceed 18 hours without special permission from the program director.

Upon satisfactory completion of the program, students receive the Bachelor of Science Degree in Home Economics and are eligible to apply for membership in the American Dietetic Association and to apply for the registration examination to qualify as a Registered Dietitian (R.D.)

### Freshman

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Chemistry 1510-20-30</td>
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<td>Math 1540-50, English 1010 or 1011, 1020</td>
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<td>Home Economics 1510</td>
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<td>Home Economics 1520</td>
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<td>Psychology 2510</td>
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<td>Sophomore</td>
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<tr>
<td>Nutrition and Food Sciences 3130-40-50</td>
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<tr>
<td>Microbiology 2910-19</td>
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<td>8</td>
<td>2</td>
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<tr>
<td>Speech 2311 or 2381</td>
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<td>English Literature Elective</td>
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<td>Economics Elective</td>
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<tr>
<td>Application and selection by a faculty committee required for progression to junior year.</td>
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### Junior

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<td>Nutrition and Food Science 3160-61</td>
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<td>Nutrition and Food Science 4000-01</td>
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### Senior

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<td>Nutrition and Food Science 4250-51</td>
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<td>Anthropology 4250 or Philosophy 3611</td>
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<tr>
<td>Electives</td>
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</tbody>
</table>

**Total: 190 hours**

1. Statistics 2100 requires Math 1560 as prerequisite.
2. Program must include at least 72 hours of 3000-4000 level courses.

### Tourism, Food, and Lodging Administration Major

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 complex management problems in the industry.

A business minor is available to students who successfully complete 21 hours of the following required courses: Accounting 2110-20-30, Economics 2510-20, and Statistics 2100. In addition, 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. The 12 hours of upper-division business courses required in the curriculum may apply toward satisfying the 15 hour elective requirement.

Students wishing to major in the Tourism, Food and Lodging Program will be enrolled as Nutrition and Food Sciences majors and a departmental advisor will be assigned to assist with program planning. In order to progress into the Tourism, Food and Lodging Administration program, students must:

1. Participate in a structured interview with two TFLA faculty members.
2. Participate in an evaluation of work experience, if appropriate.
3. Complete the application form, including a statement of career goals.
4. Complete the following prerequisite courses with a grade of C or better: NFS 1010 Food Principles, NFS 1130 Elementary Nutrition, NFS 2210 Introduction to TFL Administration, NFS Food Service Systems Management.

In order to progress through the TFLA major, students must:

1. Complete Computer Science 1410, a statistics course, Accounting 2130 and Marketing 3120 prior to registration for any 4000-level NFS course.
2. Make a grade of C or better in all 3000- and 4000-level NFS courses.
3. Maintain a cumulative GPA of 2.3.

### Application Deadlines

Students must apply fall, winter, or spring quarter for progression into the TFLA program after completion of prerequisite courses and a cumulative GPA of 2.3. However, enrollment in NFS 3220 or any upper-division NFS course will not be permitted until the student has progressed in to the TFLA program.

#### Freshman

<table>
<thead>
<tr>
<th>Course Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Nutrition and Food Sciences 1010</td>
<td>3</td>
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<tr>
<td>Nutrition and Food Sciences 1130</td>
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<td>Nutrition and Food Sciences 2110</td>
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</tbody>
</table>

1. Natural science electives (12 hr. sequence) from one of the following areas: Biology 2220-30, Chemistry 1510-20-30, or Physics 1410-20-30.
2. Statistics 2100 requires Math 1560 as a prerequisite; for the business minor Statistics 2100 is required.

#### 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 interested primarily in becoming professional interior designers. This program has received provisional accreditation by FIDER.

### Association and Progression Policies

Applications in Interior Design must be received by the Director of Admissions no later than March 1st for association in 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.

Progression 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) a personal interview and evaluation of the applicant's portfolio by designated members of the interior design faculty.

*A minimum of 72 hours of upper-division courses are required for graduation.

| Psychology 2500 or 2530 | 4 |
| Home Economics 2510 | 4 |

### NOTE:

Prior to taking any 4000-level NFS course, Tourism, Food and Lodging majors must complete Computer Science 2140, a statistics course, Accounting 2130 and Marketing 3120.

| Nutrition and Food Sciences 3230 | 5 |
| Nutrition and Food Sciences 4210-20 | 6 |
| Nutrition and Food Sciences 4270 | 3 |
| Economics 3420 | 3 |
| Marketing 3110-20 | 6 |
| Textiles & Clothing 3030 | 3 |
| Interior Design and Housing 3110 | 3 |
| Computer Science 1410 | 3 |
| Electives | 16 |

| Nutrition and Food Sciences 4230 | 15 |
| Nutrition and Food Sciences 4240-50-60 | 10 |
| Nutrition and Food Sciences 4490 | 3 |
| Home Economics 3510 | 4 |
| Business Law 4110 | 3 |
| Electives | 11 |

**Total: 190 hours**
Students whose competencies suggest other programs will be counseled to enter other departmental curricula or assisted in the transfer to other college or university programs.

Students must maintain an overall 2.3 grade point average by the end of 96 hours in order to maintain full status in the program. Those academically deficient students will be put on temporary status during which the students must raise their overall GPA to 2.3, or have a minimum of 2.3 for each quarter's work until the overall average is raised to 2.3. If the GPA is not raised to 2.3, the student will be dropped from the interior design program. Students must earn a C or better in each required interior-design interior design course in order to graduate from the program.

**Professional Curriculum in Interior Design**

**Freshman**  
<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
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<td>Sociology 3130</td>
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<td>Speech 2301 or 2361</td>
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<td>Advertising 3090 or 4540 or 4510</td>
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**Senior**  
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<tr>
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<td><em>Science</em> elective</td>
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<td><strong>Total:</strong></td>
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**Bachelor of Science in Textiles and Clothing Major**

**OPTION 1. MERCHANDISING**

This program is designed to prepare students for careers in textile processing, research, product development and quality assurance. Required courses are available within the college of Home Economics.

**Freshman**  
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<tr>
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<td>Food Sciences 3130</td>
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<td>Mathematics 1540-50-60 or 1840-50-60</td>
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<td>Psychology 2500</td>
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**Electives**  
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**Junior**  
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<td>Journalism 2210</td>
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<td>Physics 2210-20 or 1210-20</td>
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<tr>
<td>Statistics 2100 or 3450</td>
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<td>Home Economics 3510</td>
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<td>Upper-Division Electives</td>
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**Senior**  
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<td>Upper-Division Electives</td>
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**Total:** 192 hours
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, application, and a Graduate Catalog from: Dr. Jay Stauss, Associate Dean, Graduate Studies and Research, College of Home Economics, The University of Tennessee, Knoxville, TN 37996-1900.

Departments of Instruction

Child and Family Studies (245)

Professors:
- N. H. Ball (Dean), Ph.D. Michigan State; M. L. Bingham (Emerita), Ph.D. Cornell; J. E. Allen, Ph.D. Purdue; C. A. Buehler, Ph.D. University of Tennessee; E. L. Speer (Emerita), Ed.D. Cornell; R. Bishop (Emerita), Ph.D. Cornell; J. L. Cunningham, N. H. Belck (Dean), Ph.D. Michigan State; M. L. White, Ed.D. Tennessee.

Associate Professors:

Assistant Professors:
- J. E. Allen, Ph.D. Purdue; C. A. Buehler, Ph.D. University of Minnesota; J. S. Kidwell, Ph.D. Purdue; K. G. Weddle, Ph.D. Tennessee.

Lecturer:
- A. E. Cox, M.S. Tennessee.

1120 Management and Its Contribution to Family Living (3) Decision-making process, relationships among decision makers, the decisionmaking organization for implementing decisions; evaluation procedures; factors affecting management process; application of management principles to problems.

1500 Introduction to Early Education (3) Introduction and overview of early childhood education; conceptions of children, teachers, and teaching. Includes field observation.

3210 Development in Early Childhood (3) Comprehensive view of the child during the early childhood years. Application of principles to selected aspects of development: physical, cognitive, emotional, and social. Required 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. Recommended 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 involving the application of individual 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; 3200 recommended.

3360 Aesthetics Experiences (3) Examination of subject matter areas—quantity and logic, art, music, literature, science. Prereq: 3350 recommended.

420 Family Economics (3) Management of family income and resources. Private and public measures to improve family position and reduce income insecurity. Coreq: Economics 2520.

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 declining family roles and changing relationship patterns 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 growth and development during the teen years; role of parents and other adults in fostering adolescents' development. Upper-division students only. Prereq: 2110 or 3210 or 4 hrs. psychology.

4110 Student Teaching in Preschool Settings (3) Increasing responsibility for planning and guiding groups of young children under supervision of a head teacher. Includes 2-hr. weekly seminar. Prereq: 1500, 3210, 3300, 3350; 3360 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, 3350; 3360 recommended; coreq: 4110. S/NC.

4210 Family Finance (3) Analysis of alternative ways of meeting financial problems encountered during life cycle of family.

4220 Conservation 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 and research relevant to child development with emphasis on research literature and research methodology. Prereq: 4 hrs. of psychology and 6 hrs. of child development. S/NC.

4420 Learning Experience with Parents (3) Dynamics of parent-child interaction. Emphasis on a variety of techniques for developing communication and working relationship. Topics include parent roles and behaviors 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 development 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.


4510 Child in the Community (3) Needs of children; community agencies responsible for 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. Graduate study programs for deprived preschool children. Prereq: 3110 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 problems, and opportunities for consumer concerns. Hrs. arranged. May be repeated. Maximum credit 15 hrs. S/NC.

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.

4810 Afro-American Families (3) Historical background, contemporary family structure and relationships; emerging needs and programs. Prereq: 4 hrs. in social sciences or equivalent. S/NC.

4820 Families, Economics, and Demographic Change (3) Introduction to economic analysis of family demographic change. Topics covered include the decline in family size, dual working-dual career families, economic of marriage, and increased divorce rate. Prereq: 3420 or 3515 or consent of instructor.

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 consumer protection. Prereq: 3480. S/NC.

4978 Honors: Child, Family, and Consumer Studies (3) Individual special problems for seniors and juniors showing special ability and interests. May be repeated. Maximum credit 9 hrs.

GRADUATE Consult the Graduate Catalog for listing of graduate level courses.

Nutrition and Food Sciences (725)

Professors:
- R. E. Beauchene, Ph.D. Kansas State; M. R. Buck ley (Emerita); M.A. Columbia; A. M. Campbell (Emerita); Ph.D. Cornell; R. L. Carruth (Head), Ph.D. Missouri; G. W. Goertz (Emerita), Ph.D. Kansas State; M. J. Hitchcock (Emerita), Ph.D. Wisconsin; F. L. Maled (Emerita), Ph.D. Columbia; M. P. Penfield, Ph.D. Tennessee; J. R. Savage, Ph.D. Wisconsin; J. T. Smith, Ph.D. Missouri; J. A. Smith, Ph.D. Tennessee.

Associate Professors:
- F. E. Andrews, Ph.D. Ohio State; G. W. Disney, Ph.D. Pennsylvania; D. E. Lyon (Emerita), M.S. Cornell; N. L. Marable, Ph.D. Massachusetts; D. S. McLaughlin, Ph.D. Illinois; M. N. Traylor, M.S. Georgia; M. P. Berekley.

Assistant Professors:
- M. D. Brooks; M. S. Alabams; M. R. Evans, M.A. Kentucky; H. L. Fleshco, Ph.D. Wisconsin; E. A.
Nutrition and Food Sciences (725)

1010 Food Principles (3) Principles of food selection, preparation, and service. 2 hrs. and 1 lab. F, W, S.

1130 Elementary Nutrition (3) Principles and applications to everyday living. A student who has received credit for NFS 3120 may not receive credit for this course. F, W, S.

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. F.

2220 Dimensions of Tourism (3) Economic and cultural impact of tourism on society; examination of forces influencing the domestic and international tourist industry. S, SU.

3005-15 Nature of Food (4,4) Chemical and physical characteristics of food in relation to its functional and nutritional properties. Prereq: 3130 or equivalent. 3hrs. and 1 lab. S, F.

3020 Food and the Consumer (3) Economic considerations in food management, including food legislation, quality, consumer acceptability, and convenience. Prereq: 1010 or 3015 or 6 hrs. FTS, 4 hrs. economics, 2 hrs. and 1 lab. W, S.

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. A student who has received credit for NFS 1130 may not receive credit for this course. E.

3130 Applied Organic Chemistry (4) Basic nutrients as organic chemicals. Prereq: Chemistry 1510-20-30. Not for graduate credit for departmental majors. F.

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. W, SU.

3150 Food and Clinical Analyses (4) Elementary quantitative analyses; methods of food and clinical analyses. Prereq: 3130 or equivalent and 1400 or equivalent. 2 hrs. and 2 labs. Not for graduate credit for departmental majors. S, SU.


3161 Clinical Experience in Dietetics (2) Planned experiences for application of principles of normal nutrition in selected health care and community facilities. Coreq: 3160. Open only to students in the Coordinated Undergraduate Program in Dietetics. F.

3210 Foodservice Systems Management (3) Effective and efficient use of management resources in foodservice systems; fundamental management processes, concepts and principles to improve competence in decision-making and problem solving. W.

3220 Quantity Food Procurement and Production (5) Application of principles necessary for determining needs, procuring, storing and producing foods in volume. Prereq: 3015 or 3110 and 3160 and 3210. 3 hrs. and 2 labs. F, W.

3230 Tourism, Food and Lodging Administration (8) Planned educational experiences in selected food and lodging operations or other tourist related facilities. Prereq: 3220, SNC only. F.

3230 Survey of Dietetics I (1) Overview of dietetics and career opportunities for students majoring in foodservice systems. Prereq: Junior standing. W.

4000 Origin of Food and Foodways (3) Food origin and development of individual and group foodways. Prereq: 8 hrs. of social science or humanities. S.

4011 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. S.

4020 Introduction to Sensory Evaluation of Foods (3) Sensory judgment; student participation in experiments. 4010 S, 9 hrs. FTS; PSSc 3610 or equivalent. 2 hrs. and 1 lab. W.

4040 Food in Contemporary Society (3) Consumers' options, responsibilities, and potential influence with respect to the food supply. 3hrs. FTS; PSSc 3610 or equivalent. 2 hrs. and 1 lab. W.

4050 Food Preservation (3) Application of basic principles and research findings to food preservation in home. 3015 and 4 hrs. microbiology. 2 hrs. and 1 lab. S.

4101 Introduction to Nutrition Research (3) Nutrition principles and laboratory experiences involving small animals. Prereq: 3160; a statistics course. 2 hrs. and 1 lab. W.

4110 Nutrition in Disease I (4) Nutrition problems in diseases influenced by diet. Prereq: 3160. W.

4131 Clinical Experience in Dietetics (2) Planned clinical experiences applying principles of nutrition in disease. Coreq: 4140. Open only to students in the Coordinated Undergraduate Program in Dietetics. W.

4140 Nutrition in Disease II (3) Interdisciplinary lectures and discussions on the metabolic processes of normal and diseased conditions, for infants and various organ systems, and the dietary or behavioral modifications required. Prereq: 4130. Designed for senior students in the Coordinated Undergraduate Program in Dietetics. F.

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. F.

4150 Community Nutrition (3) Nutrition problems and services in the community. Supervised field experiences. Prereq: 3120 or 3160. F.

4151 Clinical Experiences in Dietetics (3) Supervised field experiences in the community. Prereq: 4131; 4001; or consent of instructor; coreq: 4150. F.

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 3160 or consent of instructor. W.

4170 Clinical Experience in Dietetics (4) Experience in providing coordinated and continuing nutrition care in health delivery systems. Prereq: 4151. Open only to students in the Coordinated Undergraduate Program in Dietetics. S.

4180 Environmental Effects on Nutrition (3) Effect of natural and synthetic food toxins, drugs both social and therapeutic, and extreme environmental conditions upon the nutritional requirements of humans. Prereq: 8 hrs. natural science.

4190 Diet and Drug Therapy (3) Effect of drug therapy on absorption and utilization of nutrients, and effect of diet on absorption, utilization, and toxicity of drugs. Prereq: 3160 or consent of instructor. W.

4210 Design and Layout of Food Systems (3) Design of physical facilities, selection and purchasing of equipment for food service systems. Prereq: 3220, S, SU.

4220 Food and Lodging Information Systems (3) Design and implementation of information systems for food and lodging systems or other tourist related facilities. To be taken at the beginning of the senior year with consent of instructor. Prereq: 3220, 3230, Atc. 2130, Comp. Sci. 1410, Marketing 3120; and a statistics course. S, SU.

4230 Tourism, Food, and Lodging Managerial Field Experience (5-15) Planned educational experiences in selected food services or food and lodging systems or tourist related facilities. To be taken at the beginning of the senior year with consent of instructor. Prereq: 3220, 3230, Atc. 2130, Comp. Sci. 1410, Marketing 3120; and a statistics course. S, SU.

4240 Food Systems Personnel Development (3) Development of training programs and personnel management for food systems personnel. Prereq: 3210. W.

4241 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: 4245. Open only to students in the Coordinated Undergraduate Program in Dietetics. W.

4250 Food Systems Managerial Cost Control (3) Cost analysis for food and beverages; use of financial statements for decision making for foodservice systems. Prereq: 3220, a statistics course, Atc. 2110, Econ. 2520. W.

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. W.

4260 Food and Lodging Physical Plant Planning and Maintenance (4) Fundamentals of mechanical systems and building components of the food and lodging physical plant; organization and principles of property management. Prereq: 3220, 4210, Atc. 2130, Comp. Sci. 1410, Marketing 3120, and a statistics course. 3 hrs. and 1 lab. W.

4270 Tourism and Lodging Administration (3) Marketing management principles for the tourism and lodging industries; current problems in the marketing of hospitality services. Prereq: 3220, Atc. 2130, Comp. Sci. 1410, Marketing 3120. W.

4280 Clinical Experience in Dietetics (4) Planned educational experiences at increasing levels of administrative responsibility in selected food systems. Prereq: 3220. Coreq: 4280. Open only to students in the Coordinated Undergraduate Program in Dietetics. S.

4330 Readings in Nutrition and Food Sciences (3) Reports and discussions of current literature. Prereq: 3160. S.

4340 Field Experience (1-15) Planned educational experience in selected food, food service, nutrition related industries or laboratories or community facilities. Prereq: Consent of instructor. Hrs. and credit arranged. E.

4710 Contemporary Developments (1-3) Student or staff initiated course for study of special topics pertinent to the field; topics require departmental approval. Elective credit only. Prereq: Consent of instructor. May be repeated with departmental approval for credit up to 9 hrs.
Home Economics Education (490)

Professors:
- I. Brown (Emerita), Ph.D Ohio State; N. P. Logan (Emerita), Ed.D. Tennessee.

Associate Professors:
- J. H. McNinis, 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 Child and Family Studies (see page 114 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 138.

Textiles: Merchandising and Design

Professors:
- R. G. Blakemore, Ph.D. Florida State; J. O. De Jonge (Head), Ph.D. Iowa State; A. Delong, Ph.D. Pennsylvania State; M. F. Drake, Ph.D. Pennsylvania State; B. G. Goswami, Ph.D. Manchester (England); M. Heard (Emerita), M.A. Columbus; A. J. Treece (Emerita), Ph.D. Ohio State.

Associate Professors:

Faculty Associate:
- T. L. Vigo, Ph.D. Tulane.

Assistant Professors:
- C. E. Cox, Ph.D. Tennessee; B. A. Oliver, Ph.D. Florida State; J. Rabun, M.S. Tennessee.

Lecturer:
- 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. Coreq: Architecture 1101. 1 hour and 3 labs. F

1440 Visual Studies I (4) Introduction to classification and properties of two-dimensional visual organizations as applied to interior design. Relationship of properties of visual elements and their ability to communicate information and create legible visual systems. Basic congeners of design, introduction to color principles of design. F

1450 Visual Studies II (4) Advanced classification and properties of two- and three-dimensional visual organization and design principles as applied to interior design. Relationship of properties of visual elements and their ability to communicate information and create legible visual systems. Prereq: 1440. S

2000 Man-Environment Systems (4) introduction to theory and application and environmental impact upon human behavior patterns; cause - effect relationship of dynamics of developmental changes on human behavior. Prereq: 1430, 1450 or consent of instructor. W, S

2420 Mechanical Systems for Interior Designers (4) Principles and methods of analysis required in heating, ventilation and air conditioning buildings; includes plumbing and acoustics. Prereq: Sophomore standing.

2435 Materials and Methods of Design (4) The development and application of materials and methods used in interior architectural space. Prereq: 1430. 4 hours. F

2450 Fundamentals of Interior Design (4) Development of basic design skills for problem solving in spatial organization, integration of design methods, project budgeting, drawing, materials, environmental systems on a micro-use scale. Prereq: 1430. F

2451 Fundamentals of Interior Design II (4) Problem-solving in microenvironments using the design process. Communication of design solutions through perspective drawing, model building, and experimentation with various media types. Prereq: 2450 and full admission to interior design program or consent of instructor. W

2452 Fundamentals of Interior Design III (4) Problem-solving, spatial organization in micro-environments on an increasingly larger scale. Communication of total design solutions using a variety of graphic, audio and photographic techniques as presentation methods. Prereq: 2451 or consent of instructor. S

2791 History of Interior Architecture I (4) History of interior architecture, furniture, and other design forms within the cultural context: Greece, Rome, the Italian Renaissance, and France during the seventeenth, eighteenth, and early nineteenth centuries. (Same as Art 2791) W, S

3110 Beginning Interior Design (3) Individual and design factors influencing selection, arrangement, and combination of furnishings to derive the greatest satisfaction from homes and places of work. Prereq: 1419 or equivalent. 1 hr. and 2 labs. F, W, S.

3130 Color (4) Experimentation based on an understanding of systematic theories of color. Color interaction and relationship to light, human behavior, and cultural meaning. Application of color to enhance and define the interior environment. W

3260 Professional Procedures (4) Preparation of interior design majors for practicum experience. Emphasis on interpersonal relationships and business practices related to interior design. F

3450-51-52 Interior Design II, III (4, 4, 4) Studio problems of intermediate complexity that integrate and extend previous knowledge of working drawings, materials and sources, design methods, spatial organization and planning of micro- and macro-environments. Prereq: 2452 and junior standing for 3450. Courses should be taken in sequence or have consent of instructor. 3450-F, 3451-W; 3452-S.

3791 History of Interior Architecture II (4) History of interior architecture, furniture, and other design forms within the cultural context for England from the sixteenth through the nineteenth centuries. (Same as Art 3791) S

4110 Lighting for Interior Designers (4) The application of elements and principles of lighting and wiring to the design of the visual environment. Prereq: Junior standing. W

4260 Interior Design Practicum (8-16) Supervised practicum in establishments engaged in practice of interior design. Prereq: Junior standing in interior design major, 3256, and consent of instructor. E

4300 Field Experience (2-15) Supervised field experience; subject to departmental approval. Prereq: Senior standing and consent of faculty, SU.

4320 Family Housing Problems (3) Housing requirements of families. Reading and judging house plans; effective use of space and space allocations; heating regulation and restrictions; site selection and neighborhood development; financing procedures. Prereq: 6 hrs. from Economics 2110-20-30. F, W

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. F.

4450-51 Advanced Interior Design, I, II (6,6) Intensive interior design experiences to include complex design problems utilizing systematic design methodology. Project types to include 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. 4450-F, 4451-W.

4810 Studio Problems in Interior Design (3) Problems for seniors w/ special interest and ability in interior design. May be repeated to a maximum of 9 hrs. Prereq: Senior standing and consent of department. S.

4710 Contemporary Developments (1-4) Student and 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. S.

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.) F.

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 analyzed within the cultural context. (Same as Art 4792.) W.

4978 Honors: Interior Design (1-3) Problems for juniors and seniors w/ special ability and interest in interior design. Hours arranged. May be repeated. Maximum credit 9 hrs. Prereq: Consent of department head. E.

4988 Honors: Housing (1-3) Problems for juniors and seniors w/ special ability and interest in housing. Hrs. arranged. May be repeated. Maximum credit 9 hrs. Prereq: Consent of department head. E.

GRADUATE
Consult the Graduate Catalog for listing of graduate level courses.

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. F, W, S.

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. F, W, S.

1170 Design Analysis: Pattern Making (4) Apparel design analysis based on flat pattern, draping and drafting techniques. Comparison of these methods for style variations and costing of garments. Prereq: 1160, proficiency or 1165 or equivalent. 2 hrs. and 2 labs. F, W, S.


1429 Textiles Laboratory (1) Laboratory examination of fibers, yarns, fabrics and finishes. Coreq: 1426. Required of departmental majors. F, W, S.

2110 Fashion (3) How fashion world works, from designer to consumer; fashion trends and cycles. F, W, S.


3170 Advanced Apparel Production (3) Advanced apparel techniques and an experimental approach for contemporary fabrics and variations in garments. Prereq: 1170. 1 hr and 2 labs. W.

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. F, S.


3450 Consumer Issues: Clothing for Contemporary Families (3) Problems of clothing consumption encountered during various stages of family life cycle. Prereq: Junior standing. F.

3480 Historic Costume (3) Development of costume from ancient to modern times with consideration of historic, social, and economic settings. W.

3510 Fashion Merchandising: Planning and Control (3) Analysis of fashion merchandising practices and problems focusing on application of decision mechanisms. Prereq or coreq: 2110 and Accounting 2110. W.


4110 Teaching Materials (3) Investigation, preparation, and evaluation of teaching materials. For students planning to teach or do other instructional work. Prereq: 3440. Senior standing. 1 hr. and 2 labs.

4120 Introduction to Textile Microscopy (3) Microscopic techniques as applied to study of textile fibers and fabrics. Prereq: 4010. 1 hr and 2 labs. W.

4130 Textile Economics (3) Microscopic techniques as applied to study of textile fibers and fabrics. Coreq: 4200. 1 hr and 2 labs. W.

4140 Introduction to Textile Testing Methods (3) Methods and equipment used in physical testing as approved by recognized textile groups. Prereq: 3420, 3429. 1 hr and 2 labs. S.

4210 Elementary Textile Microscopy (3) Microscopic techniques as applied to study of textile fibers and fabrics. Prereq: 4010. 1 hr and 2 labs. W.

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. W.

4290 Design Analysis: Functional Apparel (2) 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. W.

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. F.

4510 Teaching Materials (3) Investigation, preparation, and evaluation of teaching materials. For students planning to teach or do other instructional work. Prereq: 3440. Senior standing. 1 hr. and 2 labs.

4520 Principles of Retail Management (3) Indepth analysis of retail sector of economy from management perspective. Emphasis on approaches to decision-making in retail operations: promotion, pricing, financial planning and control, product mix strategy. Prereq: Marketing 3110, 3120 or equivalent. F, W, S.

4620 Introduction to Field Experience in Merchandising (3) Interviews with store personnel, placement and planning for field experience. Prereq: Economics 2510-20, 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. S.

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, 4820, 9 hrs. of marketing, senior standing, major in merchandising, and a minimum grade point average of 2.2; coreq: 4640. Offered fall quarter only. F.

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. F.

4650 Problems in Fashion Merchandising (3) Investigation of methods affecting consumer response. Prereq: 4110, 4230, Marketing 3110-20. F.

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. W.

4978-88-98 Honors: Textiles and Clothing (3,3,3) Individual problems for juniors and seniors showing special interest in textiles and clothing. Admission only upon recommendation of head of department. Hrs. arranged. E.

GRADUATE
Consult the Graduate Catalog for listing of graduate level courses.
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 the rigors of the intellectual process. Through a study of the liberal arts one thus learns to participate in an intellectual tradition which is independent of particular teachers and which guides one in the choice of subjects for investigation and in the interpretation of those subjects. With time the individual begins to apprehend the great outlines of knowledge, the principles upon which they rest, the scale of their parts, and their lights and shadows.

The central purposes of a liberal education include the encouragement of intellectual tolerance, a dedication to the quest for knowledge as a worthwhile goal in and of itself, and the cultivation of a responsible, creative individual mind. These qualities should enable one to develop through life an ability to reason and to express oneself clearly, an incentive to absorb emerging knowledge, and a competence to confront the uncertainties of human experience. For the student whose interests and talent lead into research, scholarship, and teaching, a liberal education provides an invaluable foundation. For the individual who enters business, industry, the professions, or government service, it furnishes a broadly useful and well-rounded educational background. For all, it offers the opportunity to share in a rich intellectual heritage, in the adventures 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.

The college is committed to educating men and women to lead socially useful and personally meaningful lives. It endeavors to accomplish this mission by:

1. offering a comprehensive liberal studies program for liberal arts majors and for students in the other colleges of the university;
2. providing appropriate professional and graduate study in the arts and sciences;
3. conducting research and engaging in creative activity; and
4. serving the public interest in ways commensurate with the land-grant status of the University.

Through the programs which embody these activities, the college strives to encourage the intellectual, social, and personal development of each student in an academic community of students, faculty, and staff.

Association with the College
(See page 16.)

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 represents 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 is developed around the basic skills and distribution requirements 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 the same as 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 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, veterinary medicine, 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 Science

The Bachelor of Science degree, offered in selected departments and programs, is designed for those students who wish to pursue a more scientifically or professionally oriented program of study. Three programs leading to this degree are open to the student:
(a) Basic Program—The Basic Program for the B.S. degree contains basic skills and distribution requirements similar to the Basic Program for the B.A. as well as a unique set of requirements for the major including additional study in mathematics, statistics, or laboratory sciences.

(b) 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 to enter graduate study. 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 and thus gain seven quarters of on the job experience while earning the degree.

(c) Bachelor of Science in Social Work—The program leading to the Bachelor of Science in Social Work will best satisfy particular needs. Each student's academic program is drawn together in a way which represented sophisticated and the development of particular motivations. On occasion, unfortunately, 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 together 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 advisors, 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 assured.

A basic decision, of course, is the degree to be sought. If it is one of the four professional degrees (Bachelor of Fine Arts, Bachelor of Music, or Bachelor of Science in Chemistry, Bachelor of Science in Social Work), 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 or the Bachelor of Science degree, all the elements which make up the curricula leading to that degree will need to be kept in balance: the broad requirements in the Basic Skills and Distribution requirements, 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 the Basic Skills and Distribution 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.

Advisors 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

GENERAL REQUIREMENTS: Bachelor of Arts and Bachelor of Science Basic Programs

Each student seeking a Bachelor of Arts or Bachelor of Science (excluding the Bachelor of Science in Chemistry and the Bachelor of Science in Social Work) must develop a program which includes the following:

1. All University degree requirements as stated in the front section of this catalog;
2. A minimum of 190 credit hours;
3. At least 60 credit hours in courses numbered 3000 or above;
4. Appropriate work to satisfy the basic skills requirements and the distribution requirements, counting no course in more than one area (not required in the College Scholars Program);
5. Completion of at least one major concentration (see below).
6. Up to 8 hours in the major may also be used, where listed, to satisfy basic skills or distribution area requirements;
7. Beginning in fall 1987, no credits earned for removal of association deficiencies may be used to satisfy requirements for graduation.

I. PROGRAMS LEADING TO BACHELOR OF ARTS AND BACHELOR OF SCIENCE DEGREES

(excluding the Bachelor of Science in Chemistry and the Bachelor of Science in Social Work)

The B.A. and B.S. degrees share the same program of Basic Skills and Distribution requirements, except where noted on pages 148 and 149.

Basic Skills

1. English Composition

Purpose:
1. To gain and improve the skills necessary to write English expository prose coherently and convincingly;
2. To improve reading skills;
3. To enhance critical and analytical abilities as applied to key issues and texts.

Requirement: Students may meet this requirement in one of the following five ways:

1. By completing nine credit hours in English writing courses in one of the following series: (a) English 1010 or 1011, 1020, and three additional credits drawn from 1031, 1032, or 1033 (English Composition). Students who complete 1020 with a grade of A have the additional option to satisfy the remaining three credits in any 3000-level or 4000-level writing course offered by the department.
2. By English 1018-28-38 (Honors: English Composition). Students who obtain a grade of A or B in 1028 have the additional option, with permission, to satisfy the remaining three credits in any 3000-level or 4000-level writing course offered by the department.
3. By completing three hours of freshman English followed by a minimum of six hours in courses which require substantial writing emphasis and are identified by the Committee on Writing Standards; a list of approved courses may be obtained in the office of the Department of English or the Liberal Arts Advising Center.

By earning a score of 25 or above on the English ACT exam and a composite ACT score of 25 or above and by passing a proficiency examination in writing administered by the Department of English in cooperation with the Committee on Writing Standards.

By completing three hours of freshman English followed by a minimum of six hours in courses which require substantial writing emphasis and are identified by the Committee on Writing Standards; a list of approved courses may be obtained in the office of the Department of English or the Liberal Arts Advising Center.

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By earning a score of 25 or above on the English ACT exam and a composite ACT score of 25 or above and by passing a proficiency examination in writing administered by the Department of English in cooperation with the Committee on Writing Standards.
3. To acquire techniques of language learning;
4. To develop insight into the phenomenon of language;
5. To complement the study of certain aspects of a foreign culture or civilization.

Requirement: Completion of the intermediate level (for most languages, the 2000-level) sequence of a foreign language, or demonstration of competence on a waiver or proficiency examination. A student who has taken two or more years of a foreign language in high school and makes the introductory level sequence in the same language (usually the 1000-level sequence) may not use such credit to satisfy requirements for graduation. However, if students elect to take a foreign language in which they have had no previous training, both the elementary and intermediate level sequence may be counted for graduation. Students whose native language is not English may meet this requirement by passing English 1431-41-51 and by passing two English language literature courses at the 2000-level. These literature courses may also be counted toward the Humanities distribution requirement. (Beginning Fall 1987, no credit for coursework completed in order to remove an association deficiency in foreign language may be used to satisfy graduation requirements.)

Under the conditions stated above, the following courses may be used to satisfy the foreign language requirement:

- Asian Studies 2431-32-33 Elementary Modern Standard Arabic I, II, III;
- Asian Studies 2531-32-33 Elementary Chinese I, II, III;
- Asian Studies 3531-32-33 Intermediate Chinese I, II, III;
- Asian Studies 2631-32-33 Elementary Japanese I, II, III;
- Asian Studies 2731-32-33 Elementary Persian I, II, III;
- Asian Studies 3731-32-33 Intermediate Persian I, II, III;
- Classics 1110-20-30 Elementary Latin;
- Classics 2511-15-21 Intermediate Latin;
- Classics 2120-20-30 Elementary Greek;
- Classics 2610-20-30 Intermediate Greek.

Spanish 2110-20-30 Intermediate Spanish;
Spanish 2510-20 (2518-28) Intermediate Spanish (Honors).

(3) Mathematics, Computer Science, or Logic

Purpose
1. To develop the basic calculation skills necessary to fully appreciate the course of study at the university;
2. To understand the logical processes involved in mathematics, inductive or deductive reasoning, or computing;
3. To acquire the skills that will aid in the process of critical analysis, problem solving, and decision.

Requirement: One course chosen from those listed below (total: 3 to 4 hours).

Students with a Math ACT score of 24 or above, or those who pass a waiver or proficiency examination on material equivalent to any of these courses, will be exempted from this requirement. Standards for waiver or proficiency examination will be set by the appropriate department. Exemption from this requirement will also be granted to students who complete a three-course mathematics package under Divisional Distribution.

Under the conditions stated above the following courses fulfill this requirement:
- Philosophy 1110 Introduction to Symbolic Logic;
- Mathematics 1140 Basic Mathematical Skills, 1700 Pre-calculus Mathematics.

Distribution

(1) Divisional Distribution

Non-U.S. History
Purpose
1. To acquire an appreciation for the richness of the past as a statement on human capability, aspiration, and achievement;
2. To develop an historical perspective on a civilization that differs from or serves as a foundation for studying one's own;
3. To develop the ability to explore continuity and change among historical events and movements, and to be able to assess the critically;
4. To learn to keep one's own place and time in proper perspective, and to appreciate it more fully because of an awareness of human creativity as revealed through a study of the past of a civilization;
5. To further develop writing skills.

Requirement: Completion of a two-course, writing emphasis, lower-division sequence in Non-U.S. History (total: 8 hours). International students may fulfill this requirement with a U.S. History sequence. The following sequences satisfy this requirement:

- Asian Studies 2510-20 Rise of Classical Civilizations - Traditional Culture and Their Modern Developments.
- History 1510-20 Western Civilization, History 1518-28 18th Century, History 1610-20 World Civilization.
- Latin American Studies 2510-20 Introduction to Latin American Studies.

Natural Science
Purpose
1. To know and understand the basic vocabulary of at least one scientific discipline;
2. To learn the basic discoveries and their importance in one scientific discipline;
3. To be able to use the tools (i.e., mathematics, laboratory equipment, computers, etc.) of one scientific discipline;
4. To understand how to devise hypotheses and how to devise and perform experiments to test them;
5. To learn to apply methods of at least one scientific discipline in a "hands-on" laboratory experience;
6. To be able to analyze a situation on a college level from one particular scientific perspective.

NOTE: All Bachelor of Arts and Bachelor of Science students must satisfy Part I and Part II of the Natural Science requirement. All Bachelor of Science Programs incorporate an additional requirement of a three-quarter mathematics or statistics package that includes at least two calculus courses also required in the B.S. major description is an additional three quarter lab science sequence. Courses taken to satisfy the additional B.S. specifications may not be used also to meet Natural Science distribution requirements. See major requirements in this catalog.

Requisite:
Part I: A three-course physical or biological science sequence that includes at least two quarters of laboratory experience (total: 12 hours). The following courses satisfy Part I of this requirement:
- Astronomy 1610-20-30 (2118-28-38) Introduction to Astronomy with Lab (Honors);
- Biology 1210-20-30 General Biology;
- Botany 1110-20-30 (1118-28-38) Fundamentals of Botany (Honors);
- Chemistry 1110-20-30 (1118-28-38) General Chemistry (Honors); Chemistry 1310-20-30 General Chemistry; Chemistry 1510-20-30 Introductory General, Organic and Biochemistry;
- Geography 1810-20-30 Geography of the Natural Environment.

Part II: A three-course package in science, mathematics, and/or computer science (total: 9 to 12 hours). The following course packages or any sequence of courses listed in Part II will satisfy this requirement:
- Anthropology 2510-2930-3070 Human Origins - Bio. of Human Races - Genetics and Society (Same as Botany 3070);
- Astronomy 1510-20-30 Introductory Astronomy;
- Geology 2920-30-Biochemistry 3110 Human Physiology - Introduction to Biochemistry, Zoology 2920-30-Microbiology 2910 Human Physiology - General Microbiology; Botany 3011-30-Zoology 3410 Plants and People - Biology and Human Affairs - Bioethics.
- Botany 3010-20-30 Plants in Evolution - Field Botany; Botany 3010-20-31 Plants in Evolution Field Botany; Botany 3010-20-32 Plants in Evolution - Field Botany.
Geography 3510-20-30 Meteorology - Climatology - Land Surface Systems.
Physics 1210-20-30 Introductory Physics; Physics 1410-20-30 Nature of the Physical World.
Zoology 2510-20-30 Human Biology.

Social Science

Purpose:
1. To promote understanding of society and individual relationships.
2. To develop a critical understanding of one or more approaches, perspectives, or methodologies used in the social sciences.
3. To develop analytical skills relevant to current social, economic, or political problems, their origins in society and individuals, and possible perspectives for their resolution.

Requirement: Four or five courses (total: 15-16 hours) selected from at least two departments or programmatic areas. The following courses satisfy this requirement: Afro-American Studies 210 Introduction to Afro-American Studies; Afro-American Studies 2020 Introduction to Afro-American Studies; Anthropology 2520 Prehistoric Archaeology; Anthropology 2520 Prehistoric Archaeology; Anthropology 3420 Linguistic Anthropology (Same as Linguistics 3420); Anthropology 3670 Principles of Archaeology.

Botany 3050 Socio-economic Impact of Plants.
Economics 2510 Principles of Economics; Economics 2520 Principles of Economics; Geography 1610 Introduction to Geography; Geography 3000 Man, Location, and Behavior; Geography 3660 Cultural Geography.
Human Services 2690 Introduction to Human Services.

Music 3361 Introduction to Ethnomusicology; Music 3371 Introduction to Ethnomusicology.

Political Science 2020 Introduction to Political Science; Political Science 2510 U.S. Government and Politics; Political Science 2520 U.S. Government and Politics; Political Science 3110 Political Community.
Psychology 2500 (2518, 2528) General Psychology (Honors); Psychology 2520 Biological Foundations of Behavior; Psychology 2530 Psychology as a Social Science; Psychology 2540 Psychology of the Individual.
Religious Studies 3021 Religious Myth, Symbol and Ritual.
Sociology 1510 (1518) General Sociology (Honors); Sociology 1520 (1528) Sociology of Social Problems (Honors); Sociology 1530 Contemporary Social Change; Sociology 3130 Social Psychology.
Speech 1221 Communication and Society; Speech 1221 Introduction to Speech Communication; Speech 3031 Non-verbal Communication.

Women's Studies 2020 Women in Society; Women's Studies 3150 Gender in Society (Same as Sociology 3150).

Humanities

Purpose:
1. To learn to appreciate and interpret significant literary, philosophical, or religious texts by study and application of selected methods or traditions of thought;
2. To develop further abilities to reason critically, to construct arguments, to think creatively, to analyze objectively, to assess evidence, to perceive assumptions, and to respond to and appreciate values;
3. To further develop writing skills;
4. To learn to manipulate symbols (i.e., words, sounds, images, body movements) in a variety of ways and to employ these symbols critically, affectively, and creatively;
5. To develop abilities to participate as an enlightened observer or as an artist in a discipline within the visual, spatial, musical, theatrical, rhetorical, or written arts.

Requirement:
Part I: Literature or Philosophical Perspectives. A two- or three-course package in either literature or a philosophical perspective (total: 8-9 hours).

Part II: Literature or Philosophical Perspectives. Either two courses in the study or practice of the arts; or a two-course package in literature if a philosophical perspectives package is chosen to meet Part I; or two-course package in philosophical perspectives if a literature package is chosen for Part I (total: 6-8 hours).

Part I and II will be satisfied by selecting packages/courses from the following four lists in accordance with the instructions above.
The following course packages are designated as literature packages:

Classics 2510-20 Greek Literature in Translation - Roman Literature in English Translation;
English 2510-20 English Masterpieces; English 2531 and either 2532 or 2533 American Masterpieces; English 2560-70-80 (2 out of 3 in chronological order) Literature of the Western World; English 2660-70-80 (2 out of 3) Introduction to Literary Genres.
French 2910-20-30 French Literature in English Translation.

German 2210-20-30 German Literature in English Translation.

Medieval Studies 2601-02 Literature of the Dark Ages (5th-10th centuries) - Literature of the Later Middle Ages (11th-15th centuries).
Religious Studies 3232-33 Themes in Classic Works; Religion and Literature: 20th century.

Russian 2210-20-30 Russian Literature in English Translation.

Spanish 2910-20-30 Spanish and Spanish American Literature in English Translation.


The following course packages are designated philosophical perspectives packages:
Classics 2210-20-30 Greek and Roman Mythology.

Philosophy 1511-21 Value and Reality - Consciousness and Reality; 1611-21 Philosophy Antiquity to 1500-1500 to Early 20th Century.

Political Science 3801-02 Studies in Ancient Political Thought-Studies in Medieval Political Thought; Political Science 3803-04 Studies in Early Modern Political Thought-Studies in 19th and 20th Century Political Thought.

Religious Studies 2210-20 Founders of Religion; Religious Studies 2310-20 Criticism of Religion; Religious Studies 3370-80 The Christian Tradition; Religious Studies 3605-06 Professional Responsibility-Responsible Professionalism (Same as Phil. 3605-06).

Women's Studies 3430-35 The Concept of Woman-Philosophy of Feminism (Same as Phil. 3430-35).

The following are designated practice of the arts courses:
Art 1105 Introduction to Studio Art;

Art 2410 Creative Writing: Fiction and Poetry.

Music 1416 Music Performance.

Speech & Theater 2031 Introduction to Oral Interpretation; Speech & Theater 3851 Oral Interpretation in Literature; Speech & Theater 3861 Literature and Oral Interpretation of Poetry.

The following courses are designated study of the arts courses:
Art 1815 World Art I; Art 1825 World Art II.

Classics 2320 Art and Archaeology of Ancient Greece; Classics 2330 Art and Archaeology of Etruria and Rome.

Music 1000 Fundamentals of Music Theory; Music 1210 Orientation in Music Appreciation; Music 1220 Orientation in Music Appreciation; Music 1230 History of Rock.

Theater 1320 Introduction to Theatre; Theater 1330 Introduction to Theatre; Theater 1340 Introduction to Theatre.

(2) Upper Level Distribution

Bachelor of Arts students must satisfy two of the following three options. Bachelor of Science students must satisfy one of the following three options. It is recommended that these requirements be fulfilled after the student has achieved upper-division standing (completion of 96 hours).

U.S. Studies Option

Purpose:
1. To develop an appreciation and knowledge of U.S. culture and civilization;
2. To provide a basis from which to compare foreign cultures and civilization;
3. To develop a critical understanding of the sources of values and traditions that constitute contemporary U.S. civilization;
4. To develop an understanding of the relationship between individual and societal behavior;
5. To further develop writing skills.

Requirement: This option will be satisfied by taking any two of the following courses (total: 6-8 hours).

Afro-American Studies 4292 History and Philosophy of Afro-American Education (Same as History 4292 and Ed. C&I 4292); Afro-American Studies 3640 Contemporary Issues in Afro-American Education (Same as Ed. C&I 3640); Afro-American Studies 4810 The Afro-American Family (Same as Child & Family Studies 4810); Afro-American Studies
4830 Black Women in American Society
(Same as Women's Studies 4830).

Anthropology 3575 Afro-American Anthropology
Anthropology 3611 Archaeology of U.S. and Canada II; Anthropology 4740
Southern Appalachian Folk Culture.

Economics 3240 Economics History of the U.S.,
Economics 3340 Government & Business.

English 3311 Women in American Literature;
English 3320 Regional Identities in American Literature; English 3445 Film and
American Culture; English 4640 Black American Literature and Aesthetics.

Geography 3910 Geography of the U.S. and
Canada; Geography 3920 Geography of the American South; Geography 3940
Geography 4240 Historical Geography of the U.S.

History 3201 American Issues: Individualism & Community; History 3202 American
Issues: War and the Peaceful Ideas; History 4641 America; Mind, Mood & Society
(Colonial Period-1865); History 4651 America; Mind, Mood & Society (1865-Present).

Music 3950 Evolution of Jazz; Music 4241
Music of the United States.

Philosophy 3311 American Philosophy (Colonial Period-19th Century); Philosophy
3312 American Philosophy (19th-20th Century); Philosophy 3440 Ethics and American
Society; Philosophy 3570 Philosophical Foundations of Democratic Societies.

Political Science 3130 Popular Culture & American Politics; Political Science 3390
Contemporary Issues in American Public Policy; Political Science 3415 Law in American
Society; Political Science 3880 American Political Thought.

Religious Studies 3510 Religion in America
(Colonial Period-19th Century); Religious Studies 3520 Religion in America (20th
Century); Religious Studies 3550 Religion and Racism in America (Same as Afro-American
Studies 3550); Religious Studies 3560 Religion in the United States (Same as Afro-
American Studies 3560).

Sociology 3420 Urban Problems; Sociology
3780 American Society; Sociology 4030 Society and Law; Sociology 4820 American
Minority Groups.

Speech 4830 Studies in American Public
Address.

Theater 3282 History of American Theater;
Theater 3283 History of American Theater.

Women's Studies 3010 Emergence of the
Modern American Woman; Women's Studies 4290 Women in American History (Same as
History 4290); Women's Studies 4560 Rhetoric of the Women's Rights Movement
(Same as Speech 4560).

Foreign Studies Option

Purpose: 1. To develop an appreciation and knowl-
edge of a foreign culture and civilization;
2. To provide a basis from which a student can
analyze his or her own culture;
3. To develop a critical understanding of the
sources of values and traditions that con-
stitute a foreign culture and civilization;
4. To develop an understanding of the
relationship between individual and socie-
tal behavior in a highly interdependent
world system;
5. To further develop writing skills.

Requirement: This option will be satisfied
by taking two upper-division courses in one
of the following areas: Africa, Asia, Europe,
Latin America, the Middle East, or Critical
Issues in Foreign Studies (total: 6-8 hours).

If Western Civilization is taken to satisfy the
history requirement, the European concen-
tration may not be elected here. This option
may also be satisfied by literature courses in
Arabic, Chinese, French, German, Greek,
Hebrew, Italian, Japanese, Latin, Portuguese,
Russian, Sanskrit, or Spanish.

(Literature courses in English translation will
not meet this requirement.)

Africa
Anthropology 3530 Peoples and Cultures of Africa; Anthropology 4610 African Pre-
history.

Geography 3830 Geography of Africa.

Political Science 3615 Dynamics of Black
African Politics; Political Science 3616
Dynamics of Black African Politics.

Asia
Art 3775 Art of India; Art 3776 Art of
China; Art 3777 Art of Japan.

Asian Studies 3320 Chinese Culture; Asian
Studies 3330 Japanese Culture; Asian
Studies 3610 The Literature of India in Eng-
lish Translation.

Economics 4232 The Political Economy of
Asian Development.

History 3810 East Asia: History & Culture
to 1660; History 3820 East Asia Since 1600.

Political Science 3621 Government & Poli-
tics of the People's Republic of China.

Religious Studies 3650 Philosophy and
Religion in India (Same as Phil. 3650); Reli-
gious Studies 3660 Buddhist Philosophy and
Religion (Same as Phil. 3660); Religious
Studies 3671 Religion and Philosophy in
China (Same as Phil. 3671); Religious
Studies 3672 Religion in Japan (Same as
Sociology 3672).

Europe
Classics 3310 Art and Archaeology of the
Aegean Bronze Age & Early Greece (Europe
and the Middle East); Classics 3340 Cities of
the Greek and Roman World (Europe-Asia-
Africa); Classics 3810 Greek Civilization;
Classics 3820 Roman Civilization.

English 3050 English Culture (Up to 1660);
English 3051 English Culture (1660-Present);
English 3920 Comparative European Litera-
ture; English 3930 Comparative European
Literature.

Geography 3880 Geography and the
Soviet Union.

German 3610 Culture of the German-
Speaking Peoples; German 3620 Culture of
the German-Speaking Peoples; German
3630 Culture of the German-Speaking Peo-
ple.

History 3124 Modern Europe 1750-1900;
History 3125 Contemporary Europe 1900-
Present.

Medieval Studies 4010 Seminar in Medi-
 eval Studies.

Philosophy 3111 Ancient Western
Philosophy; Philosophy 3121 Medieval
Western Philosophy; Philosophy 3131 17th
& 18th Century Philosophy; Philosophy 3141
19th Century Philosophy.

Political Science 3631 Government & Poli-
tics in the Soviet Union; Political Science
3632 Government & Politics in the Soviet
Union; Political Science 3635 Politics of
Western Democracies; Political Science
3636 Politics of Western Democracies.

Russian 3710 Background and Main Cur-
rents of Russian Culture; Russian 3720
Background and Main Currents of Russian
Culture.

Women's Studies 3240 Women in French
Culture (Same as French 3240); Women's
Studies 3830 Women in the Greek and
Roman World (Same as Classics 3830).

Latin America
Anthropology 3580 Peoples and Cultures of
Mesoamerica (Same as Latin American
Studies 3580).

Economics 4231 The Political Economy of
Latin America (Same as Latin American
Studies 4231).

Geography 3790 Geography of Middle
America (Same as Latin American Studies
3790); Geography 3800 Geography of South
America (Same as Latin American Studies
3800).

History 3870 History of Latin America (to
1825) (Same as Latin American Studies
3870); History 3880 History of Latin America
(1825-Present) (Same as Latin American
Studies 3880).

Latin American Studies 4001 Cultural Plu-
rality in Latin America; Latin American
Studies 4002 Institutional Changes in Latin
America.

Political Science 3625 Latin American
Government; Political Science 3626 Latin
American Government.

Middle East
Asian Studies 3340 Islamic Culture; Asian
Studies 3670 Islamic Literature in Transla-
tion.

History 3780 The Traditional Middle East;
History 3780 The Modern Middle East.

Religious Studies 3110 Ancient Israel's
Historical & Religious Traditions; Religious
Studies 3120 The Rise of Judaism; Religious
Studies 3660 Islam.

Critical Issues in Foreign Studies
Afro-American Studies 4210 Pan-
Africanism: An Afro-American Perspective.
Economics 3310 Comparative Economic
Systems; Economics 3220 Principles of Eco-
nomic Development.

History 3050 The West and the Third
World Since 1870; History 3051 Revolutions
in Historical Perspective.

Political Science 3905 Political Change in
the Developing Areas; Political Science 3701
Introduction to International Relations; Poli-
tical Science 3796 Contemporary Problems
of Soviet Foreign Policy.

Sociology 3340 Comparative Poverty and
Inequality (Same as Afro-American Studies
3340); Sociology 4540 Development and
Underdevelopment (Same as Religious
Studies 4540).

Capstone Experience Option

Purpose: 1. To offer an intensive integrative experi-
ence which will substantially broaden the
student's comprehension of the major;
2. To significantly increase an understand-
ing of the ways in which the ideas,
methods, and achievements in a major
area of study have affected modern soci-
ety;
3. To examine a major field of study from a
value-oriented perspective;
4. To enhance student's mastery of prose
communication within the professional
context of their major.

Requirement: This option will be satisfied
by taking six to eight upper-division hours
chosen from the courses listed below. Con-
suit with major department for additional approved courses. Course credits should be taken in the major area unless otherwise approved by the department. It is recommended that this option be satisfied during the senior year (within 45 credit hours of graduation).

Chemistry 4000 Topics in the Development of Chemistry; Chemistry 4811 Senior Seminar; Chemistry 4821 Senior Seminar; Chemistry 4831 Senior Seminar.
Classics 4220 Seminar in Classical Studies.
History 4000 Reflections on History; History 4010 Colloquium in History.
Human Services 4300 Working within the System.
Mathematics 4910 Senior Topics; Mathematics 4940 Mathematical Modelling.
Physics 4010 Background of Physics; Physics 4020 Forefront of Physics.
Psychology 4910 Senior Seminar on Great Ideas in Psychology.

Areas of Concentration

(1) Required Major
In many ways the most important part of each student's program is the major; for it is in the intensive study of one or more limited field 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 specific majors vary by program and are discussed under each department or program. A major consists of at least 30 credit hours in courses numbered 2000 or above as specified by the department or program. Up to 8 credit hours taken in the major may also be used to satisfy basic skills or distribution requirements where listed. 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 credit hours at UTK in each major awarded on this campus. Students may elect as many courses as desired in any department or program. In lieu of a major, students may develop a Directed Program (described below). Majors available in the Basic Program for a B.A. or B.S. include: Anthropology, Art, Art History, Audiology, Biology, Botany, Chemistry1, Classics, Computer Science,1 Cultural Studies, Economics, English, French, Geography, Geology1, German, History, Human Services, Italian, Mathematics, Microbiology, Music, Philosophy, Physics1, Political Science, Psychology, Religious Studies, Russian, Sociology, Spanish, Speech Pathology, Speech and Theatre, Statistics, and Zoology.

(2) Optional Multiple Majors
After the general requirements of basic skills, distribution and a major have been satisfied, additional majors may be recorded on the transcript without regard to course overlap among the additional majors and Basic Skills and Distribution requirements. Students developing multiple majors must declare this intent at the time of application for graduation. Once a student has graduated, the establishment of additional majors becomes subject to University second-degree requirements.
Students who satisfy the requirements of a degree in a college other than Liberal Arts may also major inside the College of Liberal Arts with the approval of the degree-granting unit. These students need complete only the major requirements, not the Basic Skills or Distribution requirements for Liberal Arts degrees. The Liberal Arts major may also be listed on the student's transcript.

(3) Optional Minors
At the time of application 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 Basic Skills and Distribution requirements.
The minimum requirement for a minor is 24 credit hours in courses numbered 2000 or above. Minors are available in most departments or programs in which majors are offered and also in: Biochemistry, Physical Sciences, Political Science, and Women's Studies. Minors may be developed in other colleges or schools of the University, but must be approved by the department head in which the minor is proposed and by the Associate Dean for Student Academic Affairs in Liberal Arts. 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 the following required courses: Accounting 2110-20-30; Economics 2510-20, and Statistics 2100. Also, 16 hours of upper-division electives must be taken, including more than six upper-division hours of accounting, economics, or statistics may be used for the minor. Students are responsible for meeting prerequisites for any upper-division courses taken in a particular concentration.

(4) 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 Basic Skills and Distribution requirement. 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 major or interdepartmental 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 will satisfy the all Basic Skills and Distribution requirements, 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 advisor, 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 honors curriculum. Selection is based on 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 advisor (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, required of all College Scholars. When College Scholars fulfill departmental requirements for additional majors or minors, these will be recorded on the Scholars' transcripts. Scholars will not be required to meet Basic Skills or Distribution

\(^1\) Indicates B.S.
requirements, either as general requirements or in order to have such majors or minors officially recognized.

Further information and applications may be obtained from the Liberal Arts Advising Center.

IV. Preparation for the Health Professions

Pre-Dental
Pre-Dental Hygiene
Pre-Medical
Pre-Medical Record Administration
Pre-Medical Technology
Pre-Optometry
Pre-Physical Therapy
Pre-Veterinary Medicine

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 or Science degree in the College of Liberal Arts at The University of Tennessee, Knoxville. The two year pre-medical technology program prepares students to undertake professional training during the third year of study at UTCHS. The Science Medical Technology Program prepares students to undertake professional training during the fourth year of study at the University of Tennessee Medical Research Center and Hospital. Other pre-health professional programs—dentistry, medical record administration, and pharmacy, nursing, 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 admission 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 competition 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 professions advisor in the Liberal Arts Advising Center (220 Ayres Hall) for more information about the programs outlined below. Specific requirements often change in the health professions programs. Bulletins describing the various pre-health professional programs, including a detailed statement on requirements, may be obtained from the Health Professions Office, 220 Ayres Hall.

PRE-DENTAL PROGRAM

The college offers both a three-year program leading to a Bachelor of Arts degree and a four-year program leading to a Bachelor of Arts or Science degree for students preparing for the study of dentistry. Both programs are based upon the curriculum outlined below. In the three-year program the student must complete at least 138 credit hours while enrolled in the college, and the B.A. degree is granted upon satisfactory completion of the first year of study at UTCHS. In the four-year program the degree is granted upon completion of 190 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. or B.S. 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

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<th>Course</th>
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<td>Advanced Biology or Zoology</td>
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Total: 50

Junior

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Total: 47-49

Senior

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Total: 138-147 hours

PRE-DENTAL HYGIENE PROGRAM

A Bachelor of Science in Dental Hygiene is granted upon completion of a four-year 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 advisor 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, 220 Ayres Hall.

PRE-MEDICAL PROGRAM

The college offers a three-year program leading to a B.A. degree and a four-year program leading to a Bachelor of Arts or Science degree in preparation for the study of medicine. Both programs are based upon the program outlined below. In the three-year program the student must complete at least 139 credit hours while enrolled in the college, and the B.A. degree is granted upon satisfactory completion of the first year of study at UTCHS. In the four-year program the degree is granted upon completion of 190 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 UTK before entering UTCHS. Although the B.A./B.S. 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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Senior

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<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completion of major program and B.A./B.S. requirements or completion of one year at UT Center for the Health Sciences</td>
<td>12-20</td>
<td></td>
</tr>
</tbody>
</table>

Total: 138-147 hours

1 Students wishing to prepare for professional training at institutions other than UTCHS should consult the catalogs of those institutions to determine the specific preparation required for admission.

2 Any student who has had two years of biology or one very good year in high school should take the proficiency tests for Biology 1210-20-30 to determine eligibility for enrolling directly into Biology 3110 or 3120.

3 Math placement in physics on high school courses and grades, ACT scores, and B.A./B.S. requirements. Math is a prerequisite for Physics. A math placement handout is available in the Liberal Arts Advising Center, 220 Ayres Hall. Chemistry 1110-20-30 is a prerequisite to Biology 3110-20.

4 This requirement assumes a student has had enough language background in high school to begin an intermediate language sequence at UT.

5 Recommended courses in biology and zoology are genetics, cell biology, and comparative vertebrate anatomy.
Senior
Completion of major program and B.A./B.S. requirements.

Total Minimum Required: 190 hours

Bulletin describing the pre-medical program and requirements in detail may be obtained from the Health Professions Office, 220 Ayres Hall.

1 Or equivalent honors courses.
2 Many colleges of medicine require, and others strongly recommend, preparation in calculus; therefore, students preparing for the study of medicine are strongly encouraged to include 1940-50 in their programs. In some cases, Mathematics 1550-60 may be substituted. Math placement depends on high school courses and grades, ACT scores, and B.A./B.S. requirements. Math is a prerequisite for physics. A math placement handbook is available in the Liberal Arts Advising Center, 220 Ayres Hall.
3 The College of Medicine at E.T.S.U. requires two quarters of literature.
4 Although not specifically required by the College of Medicine, the Health Professions Advisory Committee strongly recommends that students include additional work in Chemistry 2140-49 or 4910-20-30, in Zoology 3560 and 3580, and in Microbiology 3700-3519.

PRE-MEDICAL RECORD ADMINISTRATION PROGRAM

Admission to the medical record administration program at UTCHS, leading to a Bachelor of Science in Medical Record Administration, requires completion of 135 hours of prescribed courses. Classes are admitted in September; applications must be filed by April 15. The Admission process usually includes interviews with members of the faculty.

Students interested in the pre-medical record administration program are encouraged to consult with a health professions advisor in the Liberal Arts Advising Center or the Coordinator of the Health Professions Office for more information. Bulletins describing the program requirements and program in detail may be obtained from the Health Professions Office, 220 Ayres Hall.

PRE-MEDICAL TECHNOLOGY PROGRAMS

The college offers two programs leading to the study of medical technology:
1. The Science-Medical Technology Curriculum leading to a Bachelor of Science degree with a major in medical technology from The University of Tennessee, Knoxville.
2. The Pre-Medical Technology Program leading to a degree of Bachelor of Science in medical technology from UTCHS.

PRE-MEDICAL TECHNOLOGY PROGRAM

The Science-Medical Technology Curriculum is a three-year program consisting of a minimum of 140 credit hours in college. Students who complete this curriculum satisfactorily may apply for admission to the pre-professional medical technology program at The University of Tennessee Memorial Research Center and Hospital in Knoxville (UTMRC). Successful completion of this course, which results in the granting 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, Knoxville. In addition, a Certificate of Laboratory Training will be awarded by UTMRC. Students will 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

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology 1010-10; 1020; 1031 or 1032</td>
<td>9</td>
</tr>
<tr>
<td>Biology 1110-20 or Zoology 1118-28-36</td>
<td>12</td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td>12</td>
</tr>
<tr>
<td>Basic Skills B. Foreign Language (Intermediate Level Sequence)</td>
<td>9</td>
</tr>
<tr>
<td>Mathematics</td>
<td>4</td>
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</table>

Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biochemistry 3110</td>
<td>4</td>
</tr>
<tr>
<td>Zoology 2290-30</td>
<td>8</td>
</tr>
<tr>
<td>Biology 3110-20</td>
<td>8</td>
</tr>
<tr>
<td>Divisional Distribution (B)</td>
<td>6</td>
</tr>
<tr>
<td>Microbiology 3200 and 3519</td>
<td>5</td>
</tr>
<tr>
<td>Divisional Distribution (D) Humanities (1)</td>
<td>6-8</td>
</tr>
<tr>
<td>Divisional Distribution (A) Non-U.S. History</td>
<td>6</td>
</tr>
</tbody>
</table>

Junior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microbiology 4320-20</td>
<td>5</td>
</tr>
<tr>
<td>Chemistry 2140-49</td>
<td>4</td>
</tr>
<tr>
<td>Microbiology 4270</td>
<td>3</td>
</tr>
<tr>
<td>Divisional Distribution (C) Social Science</td>
<td>7-8</td>
</tr>
<tr>
<td>Divisional Distribution (D) Humanities (2)</td>
<td>6-8</td>
</tr>
<tr>
<td>Upper Level Distribution (A) U.S. Studies</td>
<td>6-8</td>
</tr>
<tr>
<td>Upper Level Distribution (A) Foreign Studies</td>
<td>6-8</td>
</tr>
</tbody>
</table>

Total Minimum Required: 190 hours

1 Or equivalent honors courses.
2 Students who have had considerable background in biology in high school (e.g., two years of biology or an unusually good one-year course) and have completed general chemistry may be eligible to go directly into Biology 3110 or 3120; consult the coordinator of the biology program for more information. Students must include at least eight hours in biological science in their electives to satisfy the requirement for admission to the medical technology course of study.
3 The requirement assumes a student has had enough language background in high school to begin an intermediate language sequence at UT.
4 Pre-medical technology students are encouraged to complete an entire mathematics sequence (1550-60 or 1940-50). Calculus is required if graduate work is planned. Math placement depends on high school courses and grades. ACT scores, and B.A./B.S. requirements. A math placement handout is available in the Liberal Arts Advising Center, 220 Ayres Hall.
5 Students having completed the 3121-21-31 Organic series may substitute it for Biochemistry 3120.

PRE-MEDICAL TECHNOLOGY PROGRAM

Students planning to seek admission to the medical technology course of study at UTCHS must complete 90 credit hours of prescribed courses while enrolled in the College of Liberal Arts. The program at Memphis is 7 quarters in length and leads to the degree of Bachelor of Science in Medical Technology from UTCHS. Classes are admitted in September and application must be made one year in advance.

Students interested in the pre-medical technology program are encouraged to consult with a health professions advisor in the Liberal Arts Advising Center or the Coordinator of the Health Professions Office for more information. Bulletins describing the pre-medical program in the Health Professions Office, 220 Ayres Hall.

Note: A degree program in nursing is also available at The University of Tennessee, Knoxville. Information may be obtained from the dean of the College of Nursing.

PRE-PHARMACY PROGRAMS

The college offers three programs preparing students for the study of pharmacy at UTCHS. The Doctor of Pharmacy (Pharm.D.) degree is conferred by UTCHS upon completion of four years of professional study at Memphis following any of the three programs. Bulletins describing the three pre-pharmacy programs in detail may be obtained from the Health Professions Office, 220 Ayres Hall.

The two-year program prepares students to be admitted to the College of Pharmacy upon completion of 50 hours of a prescribed course of study of Liberal Arts. Further information may be obtained from the Health Professions Office, 220 Ayres Hall.

The three-year program leading to a B.A. degree and the four-year program leading to either a B.A. or B.S. 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 134 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. The four-year program the B.A. or B.S. degree is granted upon completion of 190 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 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 Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1010-11; 1020; 1031 or 1032</td>
<td>9</td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td>12</td>
</tr>
<tr>
<td>Mathematics</td>
<td>8</td>
</tr>
<tr>
<td>Psychology 2500</td>
<td>4</td>
</tr>
<tr>
<td>Basic Skills B. Foreign Language (Intermediate Level Sequence)</td>
<td>9</td>
</tr>
<tr>
<td>Divisional Distribution (A) Non-U.S. History</td>
<td>8</td>
</tr>
</tbody>
</table>

Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology 1210-20-30 or Zoology 1118-28-36</td>
<td>12</td>
</tr>
<tr>
<td>Chemistry 3211-21-31 &amp; 3219-29-39</td>
<td>12</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
</tr>
<tr>
<td>Divisional Distribution (C) Social Sciences</td>
<td>5-6</td>
</tr>
<tr>
<td>Divisional Distribution (D) Humanities (1)</td>
<td>8-9</td>
</tr>
</tbody>
</table>

41-43
this program does not assure admission to and successful completion of the admissions committee of that College; Arts. will be conferred by the College of Liberal Arts.

PRE-PHYSICAL THERAPY PROGRAM

Admission to the physical therapy program at UTCCHS, leading to the degree of Bachelor of Science in Physical Therapy from UTCCHS, requires completion of 127 hours of prescribed courses while enrolled in the College of Liberal Arts. The program in Memphis is 15 months in length.

Students interested in the pre-physical therapy program are encouraged to consult with a health professions advisor in the College of Liberal Arts Advising Center or the Coordinator of the Health Professions Office for more information. Bulletins describing the physical therapy program are available at the Office of the Health Professions Office, Ayres Hall.

PRE-VETERINARY MEDICINE PROGRAM

The following program is designed for students who wish to pursue a Bachelor of Science degree while preparing for the study of Veterinary Medicine. Students in this program must complete at least 153 credit hours while enrolled in the College of Liberal Arts, must satisfy the Basic Skills and Distribution requirements, and must complete the last 45 hours in residence at UTK before enrolling in the College of Veterinary Medicine. A departmental major is not required. Upon successful completion of the first year (three quarters) of the professional veterinary medicine curriculum, the Bachelor of Arts degree will be conferred by the College of Liberal Arts.

Note: Admission to the College of Veterinary Medicine is at the discretion of the admissions committee of that College; admission to and successful completion of this program does not assure admission to the College of Veterinary Medicine.

Bachelor of Fine Arts

Two majors in the B.F.A. degree are available: B.F.A. in Studio Arts and B.F.A. in Graphic Design/Illustration. Both majors require a similar prerequisite introductory art core. Majors must pass a portfolio review, usually at the end of the sophomore year, in order to be admitted into upper-division courses and concentrations. All studio courses require 3 hours per week attendance for each credit hour earned. Completing the B.F.A. program may take more than 12 quarters. Students are urged to seek departmental advisement each quarter to ensure proper scheduling.

Two majors in the B.F.A. degree are available: B.F.A. in Studio Arts and B.F.A. in Graphic Design/Illustration. Both majors require a similar prerequisite introductory art core. Majors must pass a portfolio review, usually at the end of the sophomore year, in order to be admitted into upper-division courses and concentrations. All studio courses require 3 hours per week attendance for each credit hour earned. Completing the B.F.A. program may take more than 12 quarters. Students are urged to seek departmental advisement each quarter to ensure proper scheduling.

 transfers students are advised that a minimum of 25 hours in studio courses, and eight upper-division hours in art history must be earned at UTK. No grade below C in art courses may be applied to the B.F.A. major. A minimum of 50 credit hours, 3000-level or above, must be earned prior to graduation.

STUDIO ART MAJOR

The B.F.A. in Studio Art is a professionally oriented degree especially intended for those students planning careers or graduate study in the visual arts. Students may be accepted into advanced media concentration in (1) Ceramics, (2) Drawing, (3) Painting, (4) Printmaking, (5) Sculpture, (6) Watercolor, (7) approved Inter-Area combinations, after passing the appropriate portfolio course.

CORE CURRICULUM

The Studio Art core is required of all B.F.A. candidates. It is designed to give a broad art background, in both studio and art history, at the earliest possible time. This background, during the freshman and sophomore years, gives a foundation upon which the student may build, and provides an opportunity to become acquainted with the various artistic disciplines. This gives each student the understanding to plan a better program during the remaining two years. Unless otherwise stated the art core courses are non-sequential.

Art Core

A. Art 1000..... 2
B. Art History
   1. Art 1815, 1825, 1850..... 12
   2. Additional hours..... 12
C. Studio
   1. Art Fundamentals 1115, 1125, 1135 Fundamentals..... 6
   2. 2117 Intermediate Design & Color..... 3
   3. 2105 Drawing; 2205 Painting (or 2305 Watercolor), Sculpture (2405 or 2407 or 2408 or 2409 or 2450); 2605 Printmaking..... 12
   4. 12 hours from the following: Fiber-Fabric (2260 or 2265 or 2270 or 2275 or 2280 or 2285); 2416 Life Modeling; 2655 Metal Design; 2905 Photography; 2933 Film Design; 2990 Ceramics..... 12

II. Concentration

Ceramics, Drawing; Painting; Printmaking; Sculpture; Watercolor; or Inter-Area (approved combinations of studio media)

A. 2000-Level..... 6
B. Portfolio..... 1
C. 3000-Level..... 12
D. 4000-Level

Subtotal: 59 hours

E. Approved Studio Electives for Concentration 15

Subtotal: 55 hours

III. Studio Electives

Additional hours in studio course electives to be completed in the Art Department or at our affiliated facility. Arrowmont School of Arts and Crafts. Students may also apply a maximum of 12 credit hours of approved studio courses from Architecture, Art Education, Broadcast Journalism, Computer Science, Vocational-Technical Education, Interior Design or Theatre.

Subtotal: 27 hours

IV. General Curriculum

A. English Composition..... 9
B. Non-U.S. History/Social Science..... 8
C. Natural Science/Mathematics..... 8
D. Philosophy 3910..... 4
E. Liberal Arts Non-art Electives..... 20

Subtotal: 49 hours

Total: 190 hours
III. Studio Electives A minimum of 34 hours divided evenly from two of the following areas:
A. Fiber-Fabric	 3
B. Painting	 3
C. Printmaking	 3
D. Sculpture	 3
E. Watercolor	 3

IV. General Curriculum
A. English Composition	 9
B. Non-U.S. History/Social Sciences	 8
C. Natural Science/Mathematics	 8
D. Philosophy 3910	 4
E. Liberal Arts Non-art electives	 20

Subtotal: 34 hours
Subtotal: 49 hours
Total: 190 hours

COLLEGE ARTISTS PROGRAM
A program of 189 hours is to be determined by the student and approved by the Department of Art honors committee. This program allows the gifted student greater opportunity for establishing a unique education in studio art, which may include independent study, off-campus study, or foreign study in addition to formal class work. Participation and graduation in the College Artists Program will be noted on the student’s transcript.

Students may apply for the program upon completion of 45 credit hours, but will not normally be considered after the completion of 90 hours. Admittance of the College Artists Program is based on four criteria: (1) an overall grade-point average of at least 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 continued motivation and interest must be maintained to remain in the program.

Each College Artist will normally enroll in one or more general or departmental honors course each quarter and must participate in an honors exhibition prior to graduation.

STUDIO HONORS COURSES
Courses are designed for the exceptional student. Honors courses may be taken in any of the areas of studio instruction, and admittance is based on the following criteria:
A. Grade-point average of 3.2 in studio art courses
B. Portfolio of class and/or outside work
C. Recommendation of the studio faculty, and/or approval of the instructor
Continued participation is subject to periodic review by the faculty. Students qualified for honors courses will enroll in course numbers which most closely parallel their present level, i.e., sophomores in 2008, juniors in 3008, seniors in 4008. Each course number may be repeated for a maximum of 24 hours credit.

Bachelor of Music
The Department of Music offers the degree of Bachelor of Music with concentrations in music theory, composition, electronic music, music history and literature, and applied music (voice; piano; organ; church music—organ or piano; church music—voice; piano—literature; strings; woodwind, brass, and percussion instruments; multiple keyboard instruments; multiple woodwind instruments; studio music and jazz; 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 or better 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. (See page 193.)

MUSIC THEORY
Freshman
English 1010 or 1011; 1020; 1031 or 32 or 33 .... 9
Music 1111-21-31
Music 1113-23-33
Music 1199
Music 2200
Applied music
Ensemble
Liberal arts elective (not in music)
Music 2000
Sophomore
Music 2111-21-31
Music 2113-23-33
Music 2320-30-40
Music 2599
Applied music
Ensemble
Liberal arts electives (not in music)
Music 2000
Junior
Music 2310.
Music 3111-21-31
Music 3122
Music 3113-23-23
Music 4121 or 4131
Applied music
Ensemble
Music electives
Music history/literature (3000 level and above)
Electives
Music 2000
Senior
Music 4100
Music 4111-41
Music 4121 or 4131
Music 3199
Applied music
Ensemble
Music electives
Liberal arts electives (not in music)
Electives
Music 2000
Total: 180 hours
<table>
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<td>Sophomore Music 2111-21-31</td>
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</tr>
<tr>
<td>Music 2300</td>
<td>9</td>
</tr>
<tr>
<td>Music 2310-20-30</td>
<td>9</td>
</tr>
<tr>
<td>Music 2599</td>
<td>6</td>
</tr>
<tr>
<td>Applied Music</td>
<td>3</td>
</tr>
<tr>
<td>Ensemble</td>
<td>3</td>
</tr>
<tr>
<td>Liberal arts electives (not in music)</td>
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<tr>
<td>Music 2000</td>
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<tr>
<td>Junior Music 2340</td>
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</tr>
<tr>
<td>Music 3111-21-31</td>
<td>9</td>
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<tr>
<td>Music 3113-23-33</td>
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<td>Music 3599</td>
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<tr>
<td>Applied Music</td>
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<tr>
<td>Ensemble</td>
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<td>Electives</td>
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<td>Music 3113-23-33</td>
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<td>Music 3699</td>
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<td>Psychology 2350-40</td>
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<td>Music 2000</td>
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<td>Music 2300</td>
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<tr>
<td>Music 3041</td>
<td>2</td>
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<td>Music 3699</td>
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</tr>
<tr>
<td>Electives</td>
<td>9</td>
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<tr>
<td>Music 2000</td>
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</tbody>
</table>

**Total: 180 hours**

**MUSIC HISTORY AND LITERATURE**

**Freshman**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hours Credit</th>
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</thead>
<tbody>
<tr>
<td>English 1010 or 1011; 1020; 1031 or 32 or 33</td>
<td>9</td>
</tr>
<tr>
<td>Music 1111-21-31</td>
<td>9</td>
</tr>
<tr>
<td>Music 1113-23-33</td>
<td>9</td>
</tr>
<tr>
<td>Music 2000</td>
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<tr>
<td>Music 2300</td>
<td>3</td>
</tr>
<tr>
<td>Applied music</td>
<td>6</td>
</tr>
<tr>
<td>Ensemble</td>
<td>3</td>
</tr>
<tr>
<td>Foreign language (French or German)</td>
<td>9</td>
</tr>
<tr>
<td>Music 2000</td>
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</table>

**Sophomore**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music 2111-21-31</td>
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<tr>
<td>Music 2113-23-33</td>
<td>9</td>
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<tr>
<td>Music 2300</td>
<td>9</td>
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<tr>
<td>Music 2310-20-30</td>
<td>9</td>
</tr>
<tr>
<td>Music 2599</td>
<td>6</td>
</tr>
<tr>
<td>Applied music</td>
<td>3</td>
</tr>
<tr>
<td>Ensemble</td>
<td>3</td>
</tr>
<tr>
<td>Liberal arts electives (not in music)</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
</tr>
<tr>
<td>Music 2000</td>
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</tr>
</tbody>
</table>

**Total: 180 hours**

**PIANO**

**Freshman**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1010 or 1011; 1020; 1031 or 32 or 33</td>
<td>9</td>
</tr>
<tr>
<td>Music 1111-21-31</td>
<td>9</td>
</tr>
<tr>
<td>Music 1113-23-33</td>
<td>9</td>
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<tr>
<td>Music 2000</td>
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<tr>
<td>Music 2300</td>
<td>3</td>
</tr>
<tr>
<td>Music 3041</td>
<td>2</td>
</tr>
<tr>
<td>Music 3699</td>
<td>3</td>
</tr>
<tr>
<td>Educational Psychology 3810</td>
<td>3</td>
</tr>
<tr>
<td>Senior recital 4000</td>
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</tr>
<tr>
<td>Electives</td>
<td>9</td>
</tr>
<tr>
<td>Music 2000</td>
<td>0</td>
</tr>
</tbody>
</table>

**Total: 180 hours**

**Multiple Keyboard Instruments**

**Freshman**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1010 or 1011; 1020; 1031 or 32 or 33</td>
<td>9</td>
</tr>
<tr>
<td>Music 1111-21-31</td>
<td>9</td>
</tr>
<tr>
<td>Music 1113-23-33</td>
<td>9</td>
</tr>
<tr>
<td>Music 2310-20-30</td>
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<td>Electives</td>
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**Total: 180 hours**

**Secondary**

<table>
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<tbody>
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<td>Music 3111-23-33</td>
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<tr>
<td>Music 3699</td>
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<td>Psychological study</td>
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<td>Electives</td>
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<tr>
<td>Music 2000</td>
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**Total: 180 hours**

**Vocal**

**Freshman**

<table>
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<tr>
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<tbody>
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</tr>
<tr>
<td>Music 1111-21-31</td>
<td>9</td>
</tr>
<tr>
<td>Music 1113-23-33</td>
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<td>Music 3699</td>
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<td>Music History/literature (3000 level or above)</td>
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**Senior**

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<td>Music 2340</td>
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<td>Music 3113-23-33</td>
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<td>Music 3699</td>
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<td>Junior recital 3000</td>
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<td>Electives</td>
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**Total: 180 hours**

**Organ**

**Freshman**

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<td>Music 1113-23-33</td>
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<tr>
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<td>Applied Music</td>
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**Senior**

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<tbody>
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**Total: 180 hours**

**Keyboard Literature**

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<tr>
<td>Music 1113-23-33</td>
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**Electives**

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<td>Music 1113-23-33</td>
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<tr>
<td>Music 2300</td>
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**Total: 180 hours**

**PIANO PEDAGOGY AND LITERATURE**

**Freshman**

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**Sophomore**

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<tbody>
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<td>Senior Music 3699</td>
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**Junior**

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<td>Senior Music 3699</td>
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**Senior**

<table>
<thead>
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<tr>
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<tr>
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**Total: 180 hours**

**MULTIPLE KEYBOARD INSTRUMENTS**

**Freshman**

<table>
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**Sophomore**

<table>
<thead>
<tr>
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<tbody>
<tr>
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<td>Applied Music</td>
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**Total: 180 hours**

**College of Liberal Arts**

**Total: 180 hours**
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<th>Credits</th>
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<tbody>
<tr>
<td>Freshman</td>
<td><strong>CHURCH MUSIC (Organ or Piano)</strong></td>
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<td>Liberal arts electives (not in music)</td>
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<tr>
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<td>English 1111-21-31, 32-33 or 33-34</td>
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<tr>
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<td>Music 3113-23</td>
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<tr>
<td></td>
<td>Music 2071-81-91</td>
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</tr>
<tr>
<td></td>
<td>Music 3121</td>
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<td></td>
<td>Principal applied study</td>
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<td></td>
<td>Ensemble</td>
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<td>Liberal arts electives (not in music)</td>
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<tr>
<td></td>
<td>Music 2000</td>
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<th>Credits</th>
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<tbody>
<tr>
<td>Sophomore</td>
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<td>Music 2000</td>
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<td></td>
<td>Liberal arts electives (not in music)</td>
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<tr>
<td></td>
<td>English 1010 or 1011; 1020; 1031 or 32 or 33</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Music 2300</td>
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<td></td>
<td>Principal applied study</td>
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<td></td>
<td>Music Education 4430</td>
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<td>Principal applied study</td>
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<td>Applied area literature</td>
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<td>Principle applied study</td>
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<td>Junior recital 3000</td>
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<td>Music 2000</td>
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<tbody>
<tr>
<td>Senior</td>
<td>Music 2340</td>
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<td>Psychology or Philosophy electives</td>
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<tr>
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<table>
<thead>
<tr>
<th>Year</th>
<th>Major</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Junior</td>
<td>Music 2310</td>
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<td>Music 3113-23</td>
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<td>Music 2071-81-91</td>
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<tr>
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<td>Music 3121</td>
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<td><strong>Total:</strong></td>
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<table>
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<th>Credits</th>
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<tbody>
<tr>
<td>Sophomore</td>
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<td>Principal applied study</td>
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<td>Principle applied study</td>
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STUDIO MUSIC AND JAZZ

Freshman  Hours Credit
Music 1010 or 1011; 1020; 1031 or 1032 or 1033  9
Music 1111-21-31  9
Music 1113-23-33  9
Music 2111-21-31  9
Music 2113-23-33  9
Music 2310-20-30  9
Music 3022-23  4
Music 2820  3
Music 1030-40  2
Principal applied study  2
Liberal arts electives (not in music)  3
Music 2000  0
Sophomore  0
Senior  0
Music Education 4430  3
Music 4860  2
Music 4400  3
Music 4840  3
Principal applied study  3
Ensemble  3
Senior recital  3
Liberal arts electives  3
Electives  13
Music 2000  0
Total: 181 hours

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  9
Music 2111-21-31  9
Music 2113-23-33  9
Music 2320-30-40  9
Music 2599  3
Applied Music  3
Ensemble  2
Synthesizer Ensemble  1
Senior  4
Music 2310  3
Music 3112, 3122  6
Music 3113, 3123  6
Music 3597  9
Applied Music  3
Ensemble  2
Synthesizer Ensemble  1
Senior Music 2900  3
Computer Science 2610  3
Electives  13
Senior  3
Music 4597  9
Music 4199  3
Music 1230  3
Applied Music  3
Ensemble  2
Synthesizer Ensemble  1
Senior  8
L. A. Electives  8
Total: 180 hours

Note: The curricula in strings; woodwinds, brass, and percussion; multiple woodwinds; and voice allow 12 hours of ensemble credit to apply toward electives. This is in addition to the hours in ensemble listed in the tabular resumes.

Bachelor of Science in Chemistry

Students who desire to major in chemistry may select from among three courses of study: Bachelor of Science/Concentration A, Bachelor of Science/Concentration B, or Bachelor of Science in Chemistry. The last program is approved by the Committee on Professional Training of the American Chemical Society and is designed to train students to go directly into positions in the chemical industry or to enter graduate study leading to positions in research and college teaching. A student in the B.S. in Chemistry or cooperative program should, at the earliest opportunity, ask the Liberal Arts Advising Center for assignment of a faculty advisor in the Chemistry Department. For further information, contact the head of the Chemistry Department, 575 Buehler Hall.

COOPERATIVE PROGRAM IN CHEMISTRY

A cooperative program is available to students in the B.S. in Chemistry curriculum. After the freshman year the student alternates a quarter in school with a quarter in a job in a 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 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 3110-20-30 or 1110-20-30  9
or 1118-28-38  12
Chemistry 1325  2
Mathematics 1840-50-60 or 1848-58-68  12
Languages (Intermediate level sequence)  9
English Composition (3 course sequence)  9
Divisional Distribution A, C, or D  4
Sophomore  4
Chemistry 3211-21-31, 3219-29-39  12
Chemistry 2140-49  4
Mathematics 2849-50-60 or 2848-58-68  12
Physics 2510, 2310-20  4
Divisional Distribution A, C, or D  11
Junior  11
Chemistry 3410-20-30, 3428-39  13
Chemistry 4210-19, 4220-29  10
Computer Science 3510  3
Divisional Distribution A, C, or D  22
Senior  22
Chemistry 4110-19  5
Chemistry 4810 and 4710  4
Computer Science 4510  3
Chemistry 4811-21-31  3
Electives  29
Total: 190 hours

*must be chosen from German, French, or Russian; a student who has not had two years of one of these languages in high school will need to elect the elementary sequence before taking the intermediate level sequence.
*The Divisional Distribution requirements of the College of Liberal Arts are satisfied by taking: A. Non-U.S. History (2 course sequence, 8 hrs.); B. Social Sciences (4 or 5 courses, 15-16 hrs.); C. Humanities: 1. Literature or Philosophical Perspectives (2 courses, 15-16 hrs.); 2. Arts, Literature, Philosophical Perspectives (2 courses, 15-16 hrs.); 3. History of Ideas (2 courses, 15-16 hrs.); 4. Art, Literature, Philosophical Perspectives (2 courses, 15-16 hrs.); 5. Science (2 courses, 15-16 hrs.); 6. History of Ideas (2 courses, 15-16 hrs.); Total number of credit hours shown in each year of the curriculum are merely intended as guidelines.
*It is recommended that a portion of these elective hours be applied to advanced chemistry courses in biochemistry, mathematics, physics, or chemical, metallurgical, and polymer engineering.

Bachelor of Science in Social Work

The primary objective of the undergraduate social work program is to educate students for entry level positions in professional social work practice in traditional and innovative agency settings and to ensure growth in ability and knowledge as future practitioners and as citizens. The social work curriculum builds on a strong lib-
eral arts base of humanities and the social and behavioral sciences in order to help stu-
dents understand human diversity and the
transactions between people and their envi-
riment. The curriculum contains classroom
theory and agency-based field placements.
Educationally directed field placements, which consist of over 400 clock hours of
supervised field instruction in agency set-
tings throughout greater Knoxville, provide
extensive and challenging opportunities for
students to apply the lessons of the class-
room to the problems of society and to
prepare for employment.

Students interested in pursuing the Bach-
elor of Science in Social Work should confer
with the Director of the Social Work Pro-
gram during their first academic year. Those
completing this course of study will be pre-
pared to engage in beginning professional
social work practice and enter many gradu-
ate schools of social work with advanced
standing. This program is accredited by the
national accreditation agency, the Council
on Social Work Education.

**Freshman**

<table>
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<tr>
<th>Hours</th>
<th>Credit</th>
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<tbody>
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<tr>
<td>Foreign Language (Intermediate level sequence)</td>
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<td>History (Non-U.S.)</td>
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<td>Physical Science Sequence</td>
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<td>Zoology 2510-20-30 (Human Biology)</td>
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<td>Computer Science 1510</td>
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<td>9 (6)</td>
</tr>
<tr>
<td>Social Work 3400-10</td>
<td>6</td>
</tr>
<tr>
<td>Social Work 3110</td>
<td>4</td>
</tr>
<tr>
<td>Social Work 3500-10</td>
<td>8</td>
</tr>
<tr>
<td>Child &amp; Family Studies 3515-20</td>
<td>8</td>
</tr>
<tr>
<td>Economics Electives</td>
<td>4</td>
</tr>
<tr>
<td>Foreign Studies</td>
<td>8 (6)</td>
</tr>
<tr>
<td>Sociology 3910-20</td>
<td>8</td>
</tr>
<tr>
<td>Human Services 3200</td>
<td>4</td>
</tr>
<tr>
<td>Social Work 4103</td>
<td>6</td>
</tr>
<tr>
<td>Social Work 4120-20</td>
<td>8</td>
</tr>
<tr>
<td>Social Work 4200</td>
<td>6</td>
</tr>
<tr>
<td>Social Work 4500-20</td>
<td>16</td>
</tr>
<tr>
<td>Electives</td>
<td>11 (15)</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td>190 hours</td>
</tr>
</tbody>
</table>

*Courses selected with faculty advisor from approved list.

**Preparation for Other Professions**

**Law**

Students who plan to study law should consult the statement regarding admission
to the College of Law in the Graduate Cata-
log and discuss their programs with advisors
in the Liberal Arts Advising Center.

**Library Science**

Certain courses in the Graduate School of
Library and Information Science are open to
students in the College of Liberal Arts inter-
sted in beginning positions in a library or in
preparing for later graduate study in pro-
fessional librarianship. For further
information, see page 53 or consult the
Director of the Graduate School of Library
and Information Science.

**Planning**

Students who wish to consider a career in
city and regional planning or a related field
will find a brief description of the program of
the Graduate School of Planning on page 53. Students are accepted into planning
from a broad variety of undergraduate back-
grounds. Detailed information on the
planning profession, admission require-
ments, and the program of study may be
obtained from the Graduate School of Plan-
ing.

**Public Administration**

Students majoring in political science who
wish to prepare for an administrative career
in the public service may select courses to
fit that objective. The concentration appear-
ing below is suggested for students with
public service career interests. The degree
to be awarded is a Bachelor of Arts with
a major in political science, augmented by
supportive work in related disciplines.

**Sophomore**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political Science 2510-20, 2530 (choose 8 hours)</td>
<td>8</td>
</tr>
<tr>
<td>Economics 2510-20</td>
<td>8</td>
</tr>
<tr>
<td>Political Science 3565-66</td>
<td>8</td>
</tr>
<tr>
<td>Political Science 3545-46 or 3801-02-03-04</td>
<td>8</td>
</tr>
<tr>
<td>Economics 3340</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 2110-20-30</td>
<td>9</td>
</tr>
<tr>
<td>Political Science 4610-20</td>
<td>8</td>
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<tr>
<td>Political Science 4410</td>
<td>4</td>
</tr>
<tr>
<td>Economics 4310</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 3510</td>
<td>3</td>
</tr>
<tr>
<td>Economics 4750-80</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td>180 hours</td>
</tr>
</tbody>
</table>

In addition, sufficient electives in political sci-
ence must be taken to meet the number of
hours and the distribution requirements for a
major in political science.

Further information may be obtained in the
Department of Political Science.

*Or equivalent honors courses.

**Social Work**

Students who wish to prepare for gradu-
ate professional training in social work will
find a brief description of the program of the
School of Social Work on page 54. 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 satisfy state
certification requirements as well as all
degree requirements of the College of Lib-
eral 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); recommenda-
tion 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 sopho-
mores' year in the office of the dean of the
College of Education, 212 Claxton Education
Building. Criteria for admission are: (1) a 2.2
cumulative grade point average; (2) satisfac-
tory 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) 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 underta-
taken. Those planning to student teach during
the 1986-87 academic year must apply by
January 1, 1986.

For additional information contact Teacher
Certification Office, Room 212 Claxton Edu-
cation Building.

**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, phi-
losophy, history, religious studies, and social
science is desirable. Students may wish to consult with faculty members in the Depart-
ment of Religious Studies in planning their
programs.

**General Information**

**Association with the College**

For information regarding association with
the College of Liberal Arts, see page 16.

**Course Load**

The average course load in the college for
any quarter is 14-16 credit hours. The Uni-
versity defines full-time undergraduate
students as those who register for a mini-
imum of 12 hours. The maximum number of
hours which may be taken by liberal arts
students is 18, exclusive of elective work in
ensemble music and physical education.

Exceptions to this rule will require approval
by the Associate Dean for Student Academ-
ic 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 Basic Skills or Distribution requirements or major and minor requirements unless specifically permitted by petition. This restriction applies also to major or minor electives.

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 credit earned by examination, military service, etc.

3. A student who desires to take a course S/NC indicates that attention is to be paid to the student's grade point average. Satisfactory or NC grades will be calculated in the student's grade point average.

4. A transfer student who has more than 30 S/NC or equivalent hours 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 courses.

5. A transfer student who has more than 30 S/NC or equivalent credit earned prior to admission to The University of Tennessee, Knoxville, in a course which satisfies a Basic Skills or Distribution 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 the S/NC courses in which the student does well and, motivated by intellectual curiosity, to explore subject matter in which 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 their advisors possible limitations on the use of the S/NC option before registering for courses on this basis.

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 member 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

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 term 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 regular 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 advisor 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 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, 602 Voluntary 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 of the institutions 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 maintained in both Knoxville and Nashville. The head of 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 through 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 out its varied teaching and research activities in more than two dozen major 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 on "The Hill," and includes Ayres Hall (mathematics and computer science), Austin Peay (psychology), Hesler (botany), Walters Life Science (biochemistry, biology, microbiology, and zoology); the Neilson Physics Building (physics and...
astronomy), Geology-Geography (geology and geography), Dabney and Buehler (chemistry and ecology), and South Stadium Hall (audio and speech pathology and anthropology). 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, philosophy, political science, religious studies, sociology, and speech and theatre), the Music Building (music), and the Hearing and Speech Center (audio and speech pathology), Alumni Hall (human services) and the Art and Architecture Building (art). In this area also are the McClung Museum and the Clarence Brown and Carousel Theatres, as well as the Undergraduate Library.

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.

Office is in 218 Ayres Hall. The Liberal Arts College Offices
the Undergraduate Library.

Departments of Instruction

A B.A. major in anthropology shall consist of 42 hours, 12 of which are to be in the introductory 2500-level courses of the remaining 30 hours; 3333, 4480 and six hours are required in each of these subfields: (a) Cultural; (b) Physical; and (c) Archaeology.

(a) Cultural: 3141, 3420, 3440, 3450, 3530, 3540, 3580, 3700, 4200, 4240, 4250, 4400, 4420, 4440, 4550, 4560, 4740, 4741; (b) Physical: 2910, 2920, 2930, 3070, 3900, 4930, 4940, 4950, 4960; (c) Archaeology: 3610, 3611, 3620, 3630, 3630, 3670, 4190, 4610, 4610, 4640. At least 24 of these hours must be at the 3000-level or above. Students with senior standing may also substitute appropriate 5000-level courses with permission of the appropriate Instructor. A minor in anthropology consists of 27 hours including the 2510, 2520, 2530 introductory courses.

2510 Human Orgins (4) Non-technical survey of man's prehistoric environment, fossil primates, fossil man, and living races of mankind.

2520 Prehistoric Archaeology (4) Survey of prehistoric period with specific emphasis on method and theory in archaeology; prehistory of western Europe and Africa, archaeology in Americas.

2530 Human Culture (4) Introduction to ethnology; survey of nature of culture and its socio-cultural and natural environments; emphasis on cultural behavior from earliest evidence of humans until the end of the Pleistocene. Emphasis on the interaction between cultural and biological development and adaptation. Prerequisite: 2510 or 2520 recommended.

2910 Human Paleontology (3) Examination of human fossil record with emphasis on the analysis and explanation for the emergence and subsequent evolution of human from the perspective of the biological sciences. Prerequisite: 2510.

2920 Human Identification (3) Analysis of basic techniques applicable to the study of human skeletal biology and the identification of human skeletal material in forensic medicine. Prerequisite: 2510.

2930 The Biology of Human Races (3) Processes of racial differentiation and adaptation. Prerequisite: 2510 recommended. 3620 and 3630 recommended.

3010 Prehistoric Humans and Their Lifeways (3) A survey of the development of humans and their cultural behavior from earliest evidence of humans until the end of the Pleistocene. 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.)

3333 Visiting Lecture Program (3) Developed around lectures by visiting scholars in physical anthropology, cultural anthropology, or archaeology. Offered fall quarter with subsidises repeated 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. 2530 recommended.

3420 Linguistic Anthropology (3) Basic linguistic concepts and their application in cultural anthropology, relationship between language and culture. Prerequisite: 2530 or Linguistics 2000. (Same as Linguistics 3420.)

3440 Religion of Primitive Peoples (3) Religions of non-literate peoples. Place of religion in their social and cultural systems. 2530 recommended. (Same as Religious Studies 3440.)


3460 Alcohol, Health and Culture (3) Socio-cultural perspectives and consequences of alcohol use/abuse in various cultural groups.

3490 African Religions (4) (Same as Religious Studies 3490 and African-American Studies 3490.)

3530 Peoples and Cultures of Africa (3) Ethnographic survey of indigenous cultures of Africa. Coverage of diversity and unity of human ecology in a real perspective. 2530 recommended. (Same as Afro-American Studies 3530.)

3540 North American Indians (3) Ethnographic survey of cultures of Arctic, Southwest, Plains, and Eastern areas. Emphasis on cultural differences of peoples occupying these areas during pre-colonial period. 2530 recommended.

3545 Indians of Northwest North America (3) Survey of Indian cultures found in Northern Great Basin, Columbia Plateau, Northwest Plains, and northwest coast. Prerequisite: 2530 recommended.

3555 Cherokee Ethnography (3) Survey of sociopolitical aspects of internal affairs and external relationships from first European contact to present. Emphasis on 18th and 19th centuries.

3575 Afro-American Anthropology (3) Anthropological perspectives on Blacks in New World: examination of African-American via anthropological theories and methodology. (Same as Afro-American Studies 3575.)

3580 Peoples and Cultures of Mesoamerica (3) Ethnographic survey of aboriginal peoples and post-conquest changes in Indian cultures. Emphasis upon analysis of small rural communities using modern theories as well as indigenous perspectives. Prerequisite: 2530. (Same as Latin American Studies 3580.)

3590 Archaeology of United States and Canada I (3) Survey of prehistoric peoples north of Mexico from initial occupation to European contact. 2530 recommended.

3591 Archaeology of United States and Canada II (3) Survey of prehistoric peoples north of Mexico from initial occupation to European contact. 2530 recommended.

3620 European Prehistory (3) Cultural developments during Paleolithic, Mesolithic, and Neolithic periods. 2520 recommended.

3630 European Prehistory II (3) Cultural developments during Metal Ages. From close of Neolithic through Iron Age. 2520 recommended. 3620 and 3630 should be taken in sequence.

3660 Prehistory of Tennessee (3) History of archaeological research in Tennessee and survey of prehistoric American Indian cultures identified through research.

3670 Principles of Archaeology (3) Research strategies in archaeological excavation, interpretation, and explanation. Prerequisite: 2520 or consent of instructor.

3700 Elements of Folklore (3) Introduction to anthropological study of folklore.

3811 Introduction to Museology (3) (Same as Art 3811.)

3900 Human Osteology (4) Intensive examination of the human skeleton. Prerequisite: 2510 or consent of instructor. 3 hrs. and 1 lab.

4101 Foreign Study (1-16) See page 160.

4162 Off-Campus Study (1-16) See page 160.

4103 Independent Study (1-16) See page 160.

4111 Non-Western Education: Anthropological Approaches (3) Analysis of traditional educational practices among non-Western peoples and problems encountered from application of western models of education among those peoples. Particular attention is paid to American Indians, African tribal groups, and Asian cultures. (Same as Education C 4111.)

4200 Contemporary North American Indians (3) Survey of Indian cultures from initial Euro-American contact to present. Emphasis on the impact of post-enactment Indian policy, reservation life. Prerequisite: 2530 or consent of instructor.

4240 Applied Cultural Anthropology (3) Applications 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. Prereq: 2530.

4250 Medical Anthropology: Lecture (3) Survey of medical anthropology. Emphasis on Western and non-Western cultural aspects of health, disease, treatment, death, and related concepts. Focus on analyses and descriptions of anthropological fieldwork.

4300 Readings in Anthropology (1-9) Intensive reading of current research in anthropology majors with instructor permission. Prereq: senior standing. Others by consent 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. Prereq: 2520 or 2530, or 3419, or consent of instructor. May be repeated to a maximum of 9 credit hours.

4400 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. Prereq: Anthropology 2520 or 2530, or 3419, or consent of instructor.

4420 Dynamics of Culture (3) Culture change: innovation and selection; cultural continuity and stability. Prereq: 2530 or consent of instructor.

4440 Urban Anthropology (3) Survey of theoretical and methodological issues anthropologists encounter researching cross-cultural urban settlements. Focus on anthropological perspective and urban problems and planning. Prereq: 3450 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. Prereq: 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 Indians prior to Euro-American contact. Prereq: 2530, 3540, or consent of instructor.

4560 Cherokee Ethnology (3) Intensive survey of ideology and material aspects of Cherokee culture existing at the time of first European contact.

4600 Method and Theory in American Archaeology (3) Historical development of New World archaeology with emphasis on theory and field techniques. Prereq: 2520 or consent of instructor.

4610 African Prehistory (3) Survey of cultural history in the region south of the Sahara, from earliest evidence of human activity to time of European contact. Prereq: 2520 or consent of instructor. (Same as Afro-American Studies 4616.)

4640 Zooarchaeology (3) Basic osteological studies of non-human primates; emphasis on aboriginal man's utilization of native animals in his subsistence and culture. Identification, analysis, and interpretation of archaologically derived molluscan and vertebrate remains.

4650 Archaeology of Southeastern United States (3) Intensive study of prehistoric American Indian. Special emphasis on Tennessee prehistory. Prereq: 3610 or consent of instructor.

4720 American Folklore (3) Anthropological perspectives on folklore of geographical regions and ethnic groups of the United States. Prereq: 3700 or consent of instructor.

4740 Southern Appalachian Folk Culture (3) A survey of the settlement history and economic development of southern Appalachia in relation to its traditional culture: technology and economics, social organization, beliefs and values, oral traditions, and customs. Consent of instructor.

4741 Research in Southern Appalachian Folk Culture (3) Research oriented course dealing with a wide range of traditional culture in southern Appalachia: settlement patterns, folk housing, economy, clothing, beliefs, speech, art, song, dance, and oral traditions and customs. Prereq: 4740. May be repeated. Maximum 6 hrs.

4750 Italian Folklore (3) (Same as Romance Languages 4760.)

4930 Physical Growth and Constitution (3) Comparative growth patterns throughout the life cycle of skeletal and dental maturation; sex differences in growth; human constitutional types. Prereq: 2510 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.

4960 Primate Paleontology (3) Survey of fossil primate forms; origin and evolution of major primate lineages, emphasizing the earliest Hominoid and related forms. Prereq: 2510 or consent of instructor. (Same as Geological Sciences 4930.)

The general requirements for the master's and doctoral degrees, as well as the course description, are given in the Graduate Catalog. See Cultural Studies.

Art (140)

Professors:

Associate Professors:

Assistant Professors:

The Department of Art serves the University both generally and specifically; the Department of Art and the College of Liberal Arts offer undergraduate and graduate majors in art, with concentrations in art history, art education, and art education majors.

1800 The Visual Artist (2) Lecture course with guest artists for art majors and non-art majors. Role of visual artist. Language of art and design. Materials and processes of art disciplines (painting, sculpture, graphics, craft, photography, and architecture). Major issues and concerns in visual arts and career opportunities. Must be taken freshman year.

1105 Introduction to Studio Art: Various Media (3) Introduction to individual studio media. Individual sections for various artistic disciplines. For non-majors only. Course may be repeated, medium may not be repeated. Maximum 12 hrs.

1115 Studio Fundamentals (2) Development of observational skills and technical facility, emphasis in the areas of drawing, line, tone, space, form, and composition. Primarily for art, architecture, interior design, and art education majors.

1125 Studio Fundamentals (2) Surface composition and color. Primarily for art, architecture, interior design, and art education majors.

1135 Studio Fundamentals (2) Real space and volume. Primarily for art, architecture, art education, and interior design and housing majors.

1501 Orientation to Graphic Design/Illustration (2) Lecture/discussion of the field, history, social impact and economics. Prereq: 1115, 1125.

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 Americas 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 Matisses and Picasso.

1850 Survey of Contemporary Art (4) History of development of modern art from Surrealism through Abstract Undergraduate Art majors: see page 154. B.A. Major: Art History Pre-requisites Art 1115, 1825, and 1830 (12 hrs.); art history courses 2000 and above, which may include Greek and Roman art and archaeology (26 hrs.); studio courses 2000 and above (9 hrs.); Philosophy 3910 (4 hrs.). MUS 3811 and 5821 (12 hrs.) Undergraduate work in art history is enhanced by knowledge of at least one foreign language and by studio art experience. Graduate work normally requires reading knowledge of at least two foreign languages, usually German, French, and any other language appropriate to an area of specialization.

Students anticipating possible careers in the museum or gallery field are advised that elective hours in Art 4811 Museum Internship should be considered. B.A. Minor: Art History—Consists of 24 hours in art history: courses numbered 2000 and above. Art 1815 and 1825 are prerequisites to this minor.

B.A. Major: Art (Concentration in Studio) —Art 1000, 1115, 1125, 1135, 1850, and eight additional hours of art history are prerequisites to a major of 36 hours of courses numbered 2000 and above, including a minimum of 21 hours in upper-division courses.

B. A. Minor: Art (Concentration in Studio) —Art 1115, 1125, 1135, and 1815, 1825 are prerequisite to a minor of 24 hours which includes a minimum of 8 additional upper-division hours. Concentration may be in Ceramics, Drawing, Fiber-Fabric, Painting-Watercolor, Printmaking, Sculpture or a combination from these areas.

1000 The Visual Artist (2) Lecture course with guest artists for art majors and non-art majors. Role of visual artist. Language of art and design. Materials and processes of art disciplines (painting, sculpture, graphics, craft, photography, and architecture). Major issues and concerns in visual arts and career opportunities. Must be taken freshman year.

1305 Introduction to Studio Art: Various Media (3) Introduction to individual studio media. Individual sections for various artistic disciplines. For non-majors only. Course may be repeated, medium may not be repeated. Maximum 12 hrs.

1115 Studio Fundamentals (2) Development of observational skills and technical facility, emphasis in the areas of drawing—line, tone, space, form, and composition. Primarily for art, architecture, interior design, and art education majors.

1125 Studio Fundamentals (2) Surface composition and color. Primarily for art, architecture, interior design, and art education majors.

1135 Studio Fundamentals (2) Real space and volume. Primarily for art, architecture, art education, and interior design and housing majors.

1501 Orientation to Graphic Design/Illustration (2) Lecture/discussion of the field, history, social impact and economics. Prereq: 1115, 1125.

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 Americas 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 Matisses and Picasso.

1850 Survey of Contemporary Art (4) History of development of modern art from Surrealism through Abstract
Expressionism, Pop Art, Post-Painterly Abstraction, Op Art, Kinetic Art, Happenings, Environments, Conceptual Art, Art and Super Realism.

**2405 Sculpture: Clay and Plaster** (3) Problems in clay modeling, construction, and basic plaster casting techniques.

**2406 Special Topics in Sculpture** (3) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum 12 credit hours.

**2407 Sculpture: Mixed Media** (3) The use of two or more materials and techniques of sculptural tech-
niques, joined to create dimensional form. Possibilities include carving, molding, modeling, construction and found objects. May be repeated. Maximum 12 credit hours.

**2408 Sculpture: Metal Casting** (3) Introductory metal casting methods in bronze or aluminum. May include lost wax, styrofoam sand, ceramic shell casting meth-

- **2409 Sculpture: Welding and Model Fabrication** (3) Introduction to metal fabrication/arc and oxyacety-
lene welding and other joining techniques in steel sculpture. May be repeated. Maximum 6 credit hours.

**2415 Sculpture: Plaster and Clay II** (3) Development and extension of skills and techniques begun in 2450. May be repeated. Maximum 6 credit hours.

**2416 Sculpture: Life Modeling** (3) Modeling tech-
niques in clay and wax, working from figure. Possibilities of expression and individuality. Emphasis

- **2417 Special Topics in Drawing** (3) Prereq: 1115-1125, 1135 for art majors, none for non-art majors.

**2424 Special Topics in Painting** (3) Student or instruc-
tor initiated course offered at convenience of department to enhance and expand the painting curriculum. Does not substitute for basic program. Prereq: to be deter-
mained by department. May be repeated. Maximum 12 credit hours.

**2425 Painting II (3)** Techniques of expression in oil and other media. May be repeated. Maximum. Prereq: 2205 for art majors, none for non-art majors.

**2455 Special Topics in Fiber and Fabrics** (3) Prereq: Determined by department. May be repeated. Maximum 12 credit hours.

**2460 Fabric: Painting and Dyeing** (3) Survey of painting

- **2475 Fiber: Woven Structures** (3) Development of three-dimensional fiber structures through non-woven fiber techniques. Crochet, half-

- **2476 Fiber: Three-Dimensional Non-Woven Structures** (3) Development of three-dimensional structures through non-woven fiber techniques. Crochet, half-

- **2477 Fiber: Woven Structures** (3) The woven struc-
ture as a two-dimensional pictorial surface. Tapestry, knotted pile, woven techniques in the develop-

- **2480 Fabric: Soft Sculpture** (3) Investigation of fabric as a medium the development of relief and in-the-

- **2485 Fiber: Fabricated Structure** (3) Fabricating materials for two and three-dimensional fiber struc-
tures. Experimental approaches to weaving, wrapping and/or knotless netting. Traditional and non-tradi-
tional materials.

**2505 Lettering and Typography** (4) Use of designer tools and equipment. Forms of letters and type for the designer. Hand lettering, hot and cold type, copy

- **2506 Special Topics in Graphic Design/Illustration** (3) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum 12 credit hours.


**2516 Advertising Design (4)** Fundamentals of letter-
ing and layout for newspaper, magazine, television, outdoor advertising. Non-art majors only.

**2525 Production (4)** Theory and practice of mechan-
- **2535 Film Design (3)** Introductory theory and prac-

**2560 Special Topics in Graphic Design** (3) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum 12 credit hours.

**2565 Introduction to Printmaking** (3) Beginning non-

- **2566 Metal Design II: Enameling** (3) Exploration of vitreous enamel as individual art form and in combi-
nation with other materials. Prereq: 2655. May be repeated. Maximum 6 credit hours.

**2567 Special Topics in Art History** (4) Student or instructor initiated course offered at convenience of department. Prereq: determined by department. May be repeated. Maximum 16 credit hours.

**2725 Black Art (4)** Black art history in America. 18th century to contemporary trends. (Same as Afro-

- **2735 Film Design (3)** Introductory theory and prac-

**2760 Special Topics in Ceramics** (3) Student or instruc-
tor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum 12 credit hours.

**2765 Ceramics II: Handbuilding Techniques** (3) Prereq:

**2766 Special Topics in Sculpture** (3) Student or instruc-
tor initiated course offered at convenience of department. Prereq: determined by department. May be repeated. Maximum 12 credit hours.

**2770 Ceramics II: Wheel Techniques** (3) Prereq: 2765.

**2780 Inter-Area Portfolio Review** (1) A review of prior studio work. Successful completion required prior to registration for junior and senior courses. Prereq: consent of department. S/NC only.

**2780 Honors: Intermediate Art** (4) Intensified study for the exceptional student. May be repeated for a maximum of 24 credit hours.

**2800 Portrait Drawing Review (1)** A review of prior work in drawing. Successful completion required prior to registration for junior and senior courses. Prereq: consent of department. S/NC only.

**2801 Drawing Review** (1) A review of prior work in drawing. Successful completion required prior to registration for junior and senior courses. Prereq: consent of department. S/NC only.

**2805 Introduction to 3-Dimensional Modeling** (3) Techniques of modeling, construction, and basic 3-D modeling

- **2810 Watercolor Portfolio Review (1)** A review of prior work in watercolor. Successful completion required prior to registration for junior and senior courses. Prereq: consent of department. S/NC only.

**2820 Painting Portfolio Review (1)** A review of prior work in painting. Successful completion required prior to registration for junior and senior courses. Prereq: consent of department. S/NC only.

**2835 Sculpture Portfolio Review (1)** A review of prior work in sculpture. Successful completion required prior to registration for junior and senior courses. Prereq: consent of department. S/NC only.

**2845 Sculpture Portfolio Review (1)** A review of prior work in sculpture. Successful completion required prior to registration for junior and senior courses. Prereq: consent of department. S/NC only.

**2860 Sculpture Portfolio Review (1)** A review of prior work in sculpture. Successful completion required prior to registration for junior and senior courses. Prereq: consent of department. S/NC only.
water-based media on paper. May be repeated. Maximum credit 12 hours. Prereq: 6 hours in 2315 for art majors; consent of instructor for non-art majors.

3400 Sculpture Portfolio Review (1) A review of prior work in sculpture. Successful completion required prior to registration for junior and senior courses. Prereq: consent of department. S/NC only.

3405 Sculpture: Intermediate Clay Modeling (4) Further exploration of ceramic materials and techniques. May be repeated. Maximum 12 hours. Prereq: 2405 or consent of instructor.

3407 Sculpture: Intermediate Mixed Media (4) Further problems in the sculptural use of two or more distinct materials. Prereq: 2407 or consent of instructor.

3408 Sculpture: Intermediate Metal Casting (4) Further exploration of casting methods for bronze and aluminum. Prereq: 2408 or consent of instructor.

3409 Sculpture: Intermediate Welding and Metal Fabrication (4) Further exploration of construction in steel and other metals. Prereq: 2409 or consent of instructor.

3415 Advanced Sculpture III (4) Individual projects through discussion with instructor, designed to widen previous experience. Prereq: Permission of instructor. May be repeated. Maximum 12 hours.

3416 Sculpture: Advanced Life Modeling (2-4) Advanced modeling techniques in clay and wax, working from life. Four credit hours includes casting a minimum of 12 pieces. 2416 or consensus of instructor. May be repeated. Maximum 8 credit hours.

3500 Graphic Design/ Illustration Portfolio Review (1) A review of prior work in graphic design illustration. Successful completion required prior to registration for junior and senior courses. Prereq: 2525 or consent of instructor. S/NC only.

3509 Line Illustration (4) Study of black and white media and techniques as applied to product and editorial illustration. Prereq: 2525.


3516 Typography (4) Theories and techniques of type-setting and printing as fine art medium. Creative problems are solved using type and printing presses. May be repeated once for credit. For art majors only.

3517 Airbrush (4) Technique of airbrush. Emphasis on skill and creative applications. May be repeated. Maximum credit 12 hours.

3519 Half-tone Illustration (4) Continuous tone and limited-color media and techniques as applied to product and editorial illustration. Prereq: 3505.

3525 Visual Communications Concepts (4) Advanced pictorial perception; a broad range of concepts, methods, and techniques for designer/illustrator. Prereq: 3500.

3529 Full Color Illustration (4) Process color media and techniques as applied to product and editorial illustration. Prereq: 3519.

3535 Package Design (4) Study of contemporary concepts and techniques applied to all types of package design and production. Prereq: 3515.

3545 Corporate Design (4) Concepts of corporate graphics. Problems include all areas of graphic design and illustration. Prereq: 3535.

3555 Visual Communications Seminar (2) Political, social, economic, and ethical problems of contemporary designer. Sessions with outside guest speakers and field trips are employed.

3600 Printmaking Portfolio Review (1) A review of prior work in printmaking. Successful completion required prior to registration for junior and senior courses. Prereq: consent of department. S/NC only.

3615 Intaglio III (4) Color intaglio printing from stone or plates. Extra techniques—stone engraving, acid etching, reverse. May be repeated. Maximum credit 12 hours.

3616 Lithography III (4) Color lithography from stone or plates. Extra techniques—stone engraving, acid etching, reverse. May be repeated. Maximum credit 12 hours.

3617 Screen Printing II (4) Stencils; making of hand-made negatives. May be repeated. Maximum credit 12 hours.

3655 Metal Design III: Individual Class Projects (4) Prereq: 2655 or 2675 or consent of instructor. May be repeated. Maximum credit 12 hours.

3704 Medieval Art I (4) Byzantine and western art of Middle Ages: manuscript illumination, mosaic, Romanesque painting, sculpture, and Romanesque cathedral. Prereq: 3705 or consent of instructor.

3705 Northern European Painting: 1350-1600 (4) From courtly art of late Middle Ages to Northern Renaissance. Jan van Eyck, Roger van der Weyden, Bosch, and Durer; early printmakers.


3725 Art of Southern Europe and New World, 1550-1830 (4) Tintoretto, El Greco, Caravaggio, Zurbaran, Velazquez, Bermejo, Bartolomeo. Artistic relations between Iberia and Latin America.

3726 The Art of Northern Europe, 1550-1675 (4) Concentrated study of Bruegel, Rubens, Rembrandt, Georges de La Tour, Vermeer, Poussin, and Hals.

3733 History of Nineteenth-Century Painting in Europe and America (4) Emphasis on France: Neoclassicism, Romanticism, Friedrich, Constable, Turner, Corot and Barbizon landscapists, Hudson River Group, Pre-Raphaelite Brotherhood, Manet, Courbet, Impressionism, Eakins, Homer, Seurat through Cezanne.

3736 History of Twentieth-Century Painting in Europe and America (4) Fauvism, Die Brucke, Cubism, Der Blaue Reiter, Futurism, Dada and Surrealism, geometric abstraction, social commentary painting, Abstract Expressionism in the U.S.A. and parallels in Europe; Pop, Op, Minimal, and Concept art.

3745 History of Modern Architecture in Europe and America (4) Survey of architecture, with emphasis on the works of Atget, Kahn, Tange and Metabolism, Archigram, Soleri, and Venturi.

3746 History of Modern Sculpture in Europe and America (4) From 1800 to 1900: Neoclassicism to Rodin. From 1900 to present: emphasis on Cubism, Constructivism, Expressionism, Assemblage, Pop, Minimal Forms, Environments, and Earthworks.

3760 Studies in Afro-American Art (4) Study of the social, historic, and literary forces behind the development of Black Art trends in the U.S., with emphasis on the 20th century. Prereq: 8 hours from 1815, 1825, or 2725. (Same as Afro-American Studies 376.)

3765 History of North American Art (4) Survey of landmarks in painting, architecture, sculpture, and design from prehistory to 1900.

3766 History of Twentieth-Century American Art (4) Analysis of developments in architecture, painting, sculpture, and design from 1900.

3767 Nineteenth Century American Painting (4) From West and Copley to emergence of "The Eight."

3775 Art of Indian Asia (4) History of Indian art with consideration of art of Central Asia and Southeast Asia.

3776 Chinese Art (4) Study of Chinese painting and sculpture.


3821 Museology II (4) Museum legal procedures, grant writing, Exhibition concept development. Prereq: 3811 or consent of instructor.

3831 Exhibition Design and Gallery Techniques (4) Practical exhibition preparation and installation, publicity production, shipping and storage procedures. Prereq: 2601 or consent of instructor.

3905 Intermediate Photography (4) Individual expression in the photographic medium. May be repeated. Maximum 12 hours. Prereq: 2905 or consent of instructor.


3933 Photographic Portfolio (4) Problems and possibilities for portfolios and a camera. Assigned photographic projects and study of the works of August Sander, Diane Arbus and others. Prereq: 2905.

3935 Film Design (4) Theory and practice of film making. Prereq: 2935.

3941 Photographic Technical Workshop I (4) Investigation of the theories and practices of film exposure and development. Introduction to the zone system. Prereq: 2905.

3942 Photographic Technical Workshop II (4) Investigation of the techniques, equipment, printing, papers, chemistry, enlarging systems. Prereq: 2905.

3949 Ceramics Portfolio Review (1) A review of prior work in ceramics. For students wishing to enroll in Honors Ceramics. S/NC.

3950 Glazes (4) Prereq: 2970.

3965 Ceramics III: Individual Class Projects (4) Prereq: 3950. May be repeated. Maximum 8 credit hours.

3968 Honors Ceramics III: Individual Class Projects (4) Prereq: 3900, 3950 and consent of instructor. May be repeated. Maximum 8 credit hours.

4004 Special Topics (1-4) Student or instructor initiated course offered at convenience of Department. May be repeated.

4006 Special Topics (2-4) Student or instructor initiated course offered at convenience of Department. Prereq: Determined by department. May be repeated. Maximum credit 16 hours.

4008 Honors: Advanced Art (4-6) Intensified study for the exceptional student. May be repeated for a maximum of 24 credit hours.

4015 Individual Projects (4) May be repeated for a maximum of 12 credit hours. Prereq: Consent of Instructor.

4101 Foreign Study (1-15) See page 160.

4102 Off-Campus Study (1-16) See page 160.

4103 Independent Study (1-16) See page 160.

4106 Special Topics in Drawing (3) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 18 hours.

4215 Painting IV (6) Advanced painting stressing individual concepts and personal expression with varied media. Prereq: 12 hours in 3215. May be repeated. Maximum 18 credit hours.

4256 Special Topics in Fiber and Fabrics (3) Student or instructor initiated course to be offered at convenience of department. Prereq: determined by department. May be repeated. Maximum 12 credit hours.

4270 Fabric: Advanced Projects (4-6) Prereq: 8 hours of 3315 or consent of instructor. May be repeated. Maximum 12 hrs.

4315 Watercolor IV (6) Advanced painting with water-based media on paper stressing individual concepts and personal approaches. Prereq: 12 hours in 3315. May be repeated. Maximum 18 credit hours.

4406 Special Topics in Sculpture (3) Student or instructor initiated course offered at convenience of department. Prereq: determined by department. May be repeated. Maximum 12 credit hours.

4415 Advanced Sculpture IV (4-6) Individual development of sculptural problems and techniques. May be repeated. Maximum 18 credit hours. Prereq: Permission of instructor.

4470 Advanced Wood Sculpture (4-6) Application of lamination, carving, and carving techniques in design and construction of contemporary forms. Prereq: 2450 or consent of instructor. May be repeated. Maximum 18 credit hours.

4502 Graphic Design/Illustration Practicum (1-16) Practical work experience in the design or illustration field only by prearrangement with the department. Prereq: Senior standing and consent of instructor. May be repeated. Maximum 16 credit hours.

4505 Advanced Graphic Design (4) Advanced projects in conceptual and applied design for printed materials; publications, posters, advertisements. Prereq: 3542.

4506 Special Topics in Graphic Design/Illustration (3) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum 12 credit hours.

4509 Product Illustration (4) Advanced media, techniques, styles and concepts as applied to illustration of products for printed reproduction. Prereq: 3529 or consent of instructor.

4515 Corporate Design (4) Concepts of corporate graphic design. Problems include historical and contemporary ceramics, dealing with clay sculpture, architecture, and pottery. Orientation, Ancient Greek, Pre-Columbian, and American ceramics. Will not apply to art history requirements. Prereq: 2950. 2960, and 2970.

PI BETA PHI ARROWMONT SCHOOL OF ARTS AND CRAFTS Lecturers, spring-summer 1984:
   R. Adams; D. Bailey; P. Baldwin; J. Bassler; W. Bates; L. Bjorklund; B. Bobick; K. Borgeson; T. Carson; N. Crow; R. Daehner; P. Dufour; E. Eagle; H. Easterwood; D. Ellsworth; C. Evans; F. Fenster; W. Fiorini; M. Ford; J. Francois; R. George; M. Goldenstein; L. Goldsmith; P. Grayson; J. Hall; S. Hobg; W. Hylec; J. Iverson; F. Jacobs; E. Kalke; E. Kochansky; L. Kocianski; M. Kodani; G. Kraft; S. Kristoferson; C. Kumata; E. Lambert; T. Lang; R. Laskin; R. Nash; L. Lee; M. Lenderman; J. & D. Lines; M. Lloyd; R. Lockhart; S. Lumsden; T. Malone; P. Marion; T. & G. Marsh; R. Mawdley; T. & C. McCollcy; D. Millard; M. Monroe; J. Myers; D. Nelson; D. Nish; W. Nottingham; J. Osgood; R. Osolnik; J. Otte; N. Putnam; N. Quagliata, Sr.; F. Rewor; T. Riesing; B. Roberson; H. Sadov; R. Smiler; D. Smith; S. Stephenson; E. Streetman; J. Troy; F. Wood; K. Wood; C. Yarbough.

Arrowmont, located 40 miles from the UTK campus, is a visual arts complex which functions as a regional and national cultural center. In 1954, Pi Beta Phi Fraternity established an affiliation with The University of Tennessee and with the Department of Art in 1978. The program currently includes spring and summer one and two week media workshops, special weekend conferences, and community classes. Media offerings include: clay, fiber, fabric, metal, wood, stained glass, leather, papermaking, drawing, painting, graphics and photography. Students may receive audit, undergraduate or graduate credit for spring and summer classes through The University of Tennessee, Department of Art. Facilities include well equipped studios, on campus book and supply store, a large auditorium, art library, and resident accommodations. The Arrowmont Gallery presents changing juried, invitational, theme or media oriented exhibitions. The Gallery and Library are open to the public Monday-Saturday, 8:30-4:30 p.m.

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 with their instructor to determine whether the specific course content as printed in the Arrowmont timetable published each spring.

1204 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 Printing (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 Printing (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.

4704 Photography (1-4) Intermediate to advanced. May be repeated.

4754 Ceramics (1-4) Intermediate to advanced. May be repeated.

GRADUATE The degree of Master of Fine Arts is offered with concentrations in ceramics, drawing, fiber-fabric, painting, printing,
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. G. Maisel, M.Ed. Texas.
- H. A. Peterson, Ph.D. Illinois; B. Silverstein, Ph.D. Purdue.

**Associate Professors:**

**Instructors:**

**UNDERGRADUATE**
**General Information.** The Department of Audiology and Speech Pathology offers course work in the scientific study of human communication sciences and disorders. The two undergraduate majors (audiology and speech pathology) are pre-professional; that is, they are preparatory to graduate work and to professional certification in some aspect of speech, language and hearing disorders. The master's degree is required for most professional certificates and employment positions. Information about the audiology and speech pathology programs may be obtained from the departmental office, 457 So. Stoddard Hall, and students are strongly encouraged to consult with the undergraduate advisors in the department as early as possible in their programs. Suggested electives for non-departmental majors include 3010, 3040, 3050, 3200, 3710, 4070, and 4720.

A B.A. major in speech pathology consists of Audiology and Speech Pathology 3010, 3040, 3050, 3065, 3200, 3310, 3710, 4040, 4320, 4330, 4550, 4720; 4930 plus not less than 6 nor more than 12 hours from the following: 4340, 4460, 4470, 4610, 4650, 4940. Additional recommended courses for audiology students: Psychology 2500, 2520, 2540, 3150 and Special Education 3333, 4320, 4341, 4342, 4610 and Child and Family Studies 4810.

A B.A. major in audiologist consists of Audiology and Speech Pathology 3010, 3040, 3050, 3065, 3200, 3310, 3710, 4040, 4320, 4330, 4450, 4720; 4930 plus not less than 6 nor more than 12 hours from the following: 3010, 4450, 4470, 4610, 4650, 4940. Additional recommended courses for audiology students: Psychology 2500, 2520, 2540, 3150 and Special Education 3333, 4230, 4231, 4250.

1281 English Pronunciation for Foreign Students (3)
(Same as English 1201) E.

3010 Basic Auditory in Speech and Hearing (3) Fundamental aspects of audiology and hearing including physics of sound. Prereq: Consent of instructor. F, S.

3040 Introduction to Speech Pathology and Audiology (3) Nature, etiology, and incidence of speech, hearing, and language disorders. F, S.

3050 Speech Science I: Phonetics (3) Basic phonetics including recognition and production of spoken English sounds; analysis of their formation; acoustic characteristics of speech and speech perception. F, W.

3065 Speech Science II (4) Anatomy and physiology of speech production mechanism. Prereq: 3050. W, S.

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 3300 or Educational Psychology 2430 recommended. F, W.

3310 Articulation Disorders (4) Etiology, diagnosis, and treatment of articulatory defects. Prereq: 3040, 3050, or consent of instructor. (Same as Special Education 3310.) F, W.

3710 Audiology I (3) Fundamental aspects of auditory anatomy and physiology. Introduction to disorders of hearing and their remediation. (Same as Special Education 3710.) F, W.

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.) F.

4070 Free Association (4) Oral and written free association as process for diagnosing and treating communication disorders. Includes didactic set analysis. W, SU.

4103 Independent Study (1-16) See page 180.

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.)

4250 Introduction to the Psychology and Education of the Hearing Impaired (3) (Same as Special Education 4250.)

4310 Stuttering (3) Nature and treatment. Review and integration of various theories. Prereq: 4300 or consent of instructor. (Same as Special Education 4310.) F, SU.

4320 Introduction to Clinical Practice in Speech Pathology (3) Prereq: 3040, 3050, 3310, 4040, and consent of instructor. (Same as Special Education 4320.) E.

4330 Clinical Practice in Speech Pathology I (1) Prereq: 4320 and consent of instructor. S/NC. (Same as Special Education 4330.)

4340 Clinical Practice in Speech Pathology II (6) Prereq: 4330 and consent of instructor. May be repeated for credit. S/NC. (Same as Special Education 4340.)

4400 Voice Disorders (4) Etiology, diagnosis, and treatment of organic and functional voice disorders. Prereq: 3040, 3050, or consent of instructor. (Same as Special Education 4400.) W, S.

4450 Clinical Practice in Audiology I (6) Prereq: 4320 and 4930. (Same as Special Education 4450.)

4460 Clinical Practice in Audiology I (6) Prereq: 4450, 4720, and 4930. (Same as Special Education 4460.)

4470 Clinical Practice in Audiology I (4) Prereq: 4460, 4720, and 4930. May be repeated. Maximum credit 6 hours. (Same as Special Education 4470.)

4520 Speech Pathology (3) Independent study of special problems in speech pathology. Prereq: Consent of instructor. E.

4550 Problems in Speech Pathology (3) Prereq: Consent of instructor. E.

4610 Introduction to Language Pathology in Children (4) Nature, etiology, and treatment of language retardation. Prereq: Consent of Departmental Chair prior to the initial practice. Prereq: 3040, 3050, or consent of instructor. F, S.

4620 Birth Defect Syndromes and Language Retardation (3) Examination of research literature relevant to birth defects and language retardation including cultural, educational, and socio-emotional implications of such disorders. Prereq: 4610 or consent of instructor. S.

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. F.

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. S.

4650 Speech and Language of the Culturally Different Child (3) Discussion of speech and language differences of children of various minority groups, of different geographic regions; their causes and their effects upon educational programs. F, W, SU.

4660 Topics in Language Retardation and its Habilitation (3) Lectures on selected topics by representatives of special fields as special education, early childhood education, educational psychology, genetics, and psychology. Prereq: 4610 or consent of instructor. SU.

4720 Audiology II (4) Basic principles of clinical audiology: pure-tone, masking, and overview of special auditory tests. Prereq: 3710. (Same as Special Education 4720.) F, W, SU.

4760 Introduction to Hearing Conservation (4) Flows...
In-depth study experiments with enzymes, nucleic acids and membranes/organelles. Chromatography, kinetics, hybridization, sequencing, sedimentation, radiotracer, labeling, and immunochemical analysis. Prereq. or coreq: 4110-20 or 4119. W.

4130 Selected Topics in Biochemistry and Molecular Biology
(3) Selected topics of current research interest (e.g., recombinant DNA, monoclonal antibodies, bioinformatics, etc.). Emphasis will be on original literature and the experimental basis of current knowledge. Historical background, impact on society, the making of moral and ethical judgments, and future development of the technologies will also be discussed. Written reports required. Prereq: 4110-20. S.

4210-20 Introduction to Physical Biochemistry (3,3)
4210—Introduction to thermodynamics; phase stability and phase change; chemical potential; osmotic pressure; activity and the Debye-Hückel model; electrochemistry and permeability. 4220—Elements of statistical mechanics, diffusion, collision theory; chemical kinetics; and transition state theory; higher order kinetics; specialized kinetics of enzymatic processes; some biopolymer considerations. Prereq: Mathematics 1840-50-50, Chemistry 3211-21-31 and 3219-29-39, and an introductory course in biology.

4230 Introduction to Physical Biochemistry (3)
Physical characterization of macromolecules; polarized light, absorption and fluorescence, sedimentation and transport hydrodynamics, electrohydrodynamics, light scattering, and structural x-ray crystallography of proteins and nucleic acids. Prereq: 4220 or Chemistry 3450, or equivalent.

4500 Independent Research in Biochemistry (1-6)
Special experiments under direct faculty department. Limited to undergraduates and by consent only. May be repeated for credit. Prereq or coreq: 4110-20, 4119.

GRADUATE
Master’s and doctoral degree requirements, as well as course listings, are found in the Graduate Catalog. Master’s degree candidates usually should offer an undergraduate major in biochemistry, biology, or chemistry. Doctoral degree candidates must present an undergraduate major in biochemistry, biology or chemistry.

Biology (190)
Chairperson of Biology Curriculum Board: W. D. Wicks
Cochairperson: R. W. Holton
A B.A. major in biology may be obtained by completing one of the three following concentrations:

A. Concentration in Cell Biology: Consists of Biology 3110-20-30, Chemistry 3111-21-31, 3219-29-39, Biochemistry 4110-20 and 4119. Additional credits from Biochemistry 4210-20-30 and/or 4500 are desirable.

3110-20 Introduction to Biochemistry (4)
Biochemical principles underlying physiological events in animal tissues. Metabolism of carbohydrate, lipid, protein, and nucleic acids. Biochemistry of body fluids. Action of drugs and hormones. Prereq: Chemistry 1110-20-30 or 1510-20-30 and least 2 quarters of introductory biological sciences. Not available for credit if credit has been previously received for 4110, 4120 or 4130.

4110-20 Cellular and Comparative Biochemistry (4,4)
Electrolyte behavior; chemistry and structure of proteins; enzyme behavior and biological function; catabolism and energy capture; synthetic metabolism; nucleic acid function, protein synthesis, and biochemical genetics; regulation of biological processes. Must be taken in sequence. Prereq: Chemistry 3211-21-31, 3219-29-39, and one course from Biology 1210-20-30 or Botany 1110-20. Three lectures and discussion.

4119 Cellular and Comparative Biochemistry Laboratory (2)
Basic analytical and biochemical procedures in cell physiology: preservation of tissue, pH titrations, spectrophotometry chromatography, electrophoresis, sedimentation and enzyme assays. Prereq or coreq: 4110 or equivalent. F, S.

4129 Cellular and Comparative Biochemistry Lab (2)

satisfactory ACT scores; Chemistry 1110-20-30, 3 hours, and 1 additional class meeting. May be taken in any sequence or combination with 3110 and 3130. E.

3120 Cell Biology (4) Organization and function of the cell. Same as 3110. 3 hours and 1 additional class meeting. May be taken in any sequence or combination with 3110 and 3130. E.

3130 General Ecology (4) Relations between organisms and their environment, including human environmental problems. 3 hours and 1 additional class meeting. Prereq: Same as 3110. May be taken in any sequence or combination with 3110 and 3120. E.

4510 Scientific Illustration (3) Introduction to design and production of graphs, charts, for scientific illustration; planning of poster presentations and displays. No artistic talent assumed. Prereq: Advanced standing in a science curriculum; consent of instructor.

Botany (198)

Professors:
R. W. Holton (Head), Ph.D. Michigan; J. D. Caponnetti, Ph.D. New Jersey; J. E. Clebsch, Ph.D. Duke; H. L. DeSelm, Ph.D. Ohio State; A. M. Evans, Ph.D. Michigan; W. R. Herndon, Ph.D. Vanderbilt; K. W. Hughes, Ph.D. Utah; L. W. Jones, Ph.D. Texas; J. F. McCormick (Director of Ecology Program), Ph.D. Emory; F. H. Norris (Emeritus), Ph.D. Ohio State; R. H. Petersen, Ph.D. Colorado; J. M. Sharp (Emeritus), Ph.D. Ohio State; P. L. Wulfe, Ph.D. Texas.

Associate Professors:

Assistant Professors:
E. E. Schilling, Ph.D. Indiana; D. K. Smith, Ph.D. Tennessee; E. E. Wolford (Curator), Ph.D. Tennessee.

Instructor:
K. D. McFarland, M.S. Ohio University.

*Alumni Distinguished Service Professor.

UNDERGRADUATE

The undergraduate program offers a basic liberal arts degree with optional concentrations in cellular and molecular, and organismal botany. The curriculum design emphasizes instruction in the sciences with primary emphasis in Botany. A minimum of 39 credit hours is required to fulfill the major, 25 credit hours for a minor. The undergraduate degree in Botany is designed to furnish necessary experience in academic and practical skills to prepare graduates for immediate entry into the job market or for continuing graduate education in pure or applied biological sciences. A B.A. major consists of Biology 3110-20-30; Botany 3010-20-30, 3210, 1 hour from Botany 3710-20-30, 2 hours from Botany 4000 or 4410-20-30, 4 additional hours of upper-division Botany (not more than 3 hours allowed from Botany 3050-70-90) and 4 hours of upper-division courses from related biological sciences (zoology, microbiology, soil science, entomology and plant pathology, forestry, ornamental horticulture and landscape design, plant and soil science, or other with approval of undergraduate coordinator and department head).

Prerequisite: Prerequisites to this major are Botany 1110-20-30 or 1118-28-38 or Biology 1210-20-30 and Chemistry 1110-20-30.

Corequisites: Math 1550-60, 1840-50 or 1841-51; Chemistry 3211-21-31, 3219-29-39; and Physics 1210-20 (or 2210-20), or Geology 1410-20. (See Note)

Options for Concentrations consists of Organismal or Cellular and Molecular Botany. Concentration requirements will be individualized and must be approved in writing by the undergraduate coordinator.

Consult the departmental lists of recommended courses for areas of concentration.

A. Organismal Botany—At least 8 hours beyond the major of 3000-level or above from Botany or related Biological Sciences.

B. Cellular and Molecular Botany—At least 8 hours beyond the major of 3000-level or above from Botany or related Biological Sciences. (Biochemistry 4110-20 is recommended to complete this requirement.)

A minor consists of Biology 3110-20-30, 10 hours of upper-division in Botany (not more than 3 hours from 3050, 3070, 3090) and 4 hours of upper-division courses in related biological sciences (as described under the major). Prerequisites to the minor are Botany 1110-20-30 or 1118-28-38 or Biology 1210-20-30.

Note: Students who anticipate continuing beyond the Bachelor's level into graduate studies in Botany or related sciences should consult a Botany advisor for direction and design of coursework.

1110-20 Fundamentals of Botany (4,4) Nature and development of plants, including processes, structure, life histories, inheritance, ecology, and importance to man. Enrollment in sequence is desirable. Two 1-hour discussions and approximately 3 hours audiovisual laboratory per week. Students may not receive credit for both Botany 1110-20 and Biology 1210-20-30, 1118-28-38, and Biology 1210-20-30. F, W.

1118-28-38 Honors: Fundamentals of Botany (4,4,4) Honors course designed for superior students in beginning botany. Open to freshmen with a score of 27 or better on the natural science section of ACT, and sophomores who can earn a cumulative GPA of 3.25 or (3.5 in the sciences) who are recommended by an instructor. Three 2-hour lecture-lab-discussion period must be taken in sequence. Students may not receive credit for both Botany 1118-28-38 and Biology 1210-20-30, F, W.

1119-20 Laboratory in Fundamentals of Botany (0,0)

1130 Selected Topics in General Botany (4) Areas will include plant growth, population genetics, environmental interactions, and impact of human activities on biological systems. Lectures, laboratory, field trips, and individual projects. Two hours lecture-discussion and 4 hours laboratory per week. Occasional laboratory trips. Prereq: Botany 1110-20 or Biology 1210-20-30. S.

1130 Laboratory In Selected Topics in General Botany (0) Students must also register for 1130.

3010-20 Plants in Evolution (4,4) Monera to angiospermae; emphasis on evolutionary relationships, morphology, physiology, reproduction, and importance of adaptation. Not for botany graduate credit. Prereq: 6 hours in biological sciences. F, W.

3011 Plants and People (3) Botany of domesticated food plants from prehistoric times to the present with consideration of their origin, spread and relationship to development of civilization and to present problems of hunger. Not open to botany majors.

3030 Field Botany (4) Study of plants in natural environments including plant identification, collection, preservation, and botanical ecological concepts. Prereq: 6 hours in biological sciences. Not for botany graduate credit. S, SU.

3031-32 Field Botany (4,4) Emphasis on fall and winter flora, respectively. Prereq: 3030. Need not be taken in sequence. F, W.

3050 Socio-Economic Impact of Plants (3) Significance of plants in origin and development of human cultures, cultivation of domesticated plants, and role of plants in present civilizations. Optional field trips. Not for botany graduate credit. S, SU.

3070 Genetics and Society (3) An introduction to genetic, anthropological, and sociological approaches to genetics on their implications for human society. Not for botany graduate credit. (Same as Anthropology 3070.) W, A.

3090 Biology and Human Affairs (3) Basic biological principles involved in deterioration and preservation of an environment in which humans and their cultures may survive. Not for botany graduate credit. (Same as Zoology 3090). F.

3130 Introductory Plant Pathology (4) (Same as Entomology and Plant Pathology 3130.)

3210 Introductory Plant Physiology (4) Organismal physiology of plants, plant nutrition, phloem and xylem transport, plant hormones, growth and reproduction of plants. Not for botany graduate credit. Prereq: Chemistry 1110-20-30 or biology 1210-20-30 or Botany 1110-20 or Geology 2710. S.

3710-20-30 Junior Seminar (1,1,1) At least 1 hr. is required for a Botany major. Prereq: Junior standing.

4000 Tutorial in Botany (1-3) Independent, individual study under guidance of selected staff. By application only. May be repeated with consent of department. Maximum credit 6 hours. E.

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. S.

4021 Field Bryology (3) Field experience on identification of mosses and liverworts. 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. S.

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. S.

4023 Field Agroecology (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. S.

4030 Mechanisms of Plant Speciation (3) Processes of plant speciation emphasizing population genetics, isolation, drift, variation, hybridization, allopolyploidy, originations, establishment of population barriers, and other aspects of plant speciation. Prereq: 4010-20 and Botany 3110. W.

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 practice with techniques and literature for accurate identification. Prereq: 6 hours of study. Recommended: Botany 3010-20. S.

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 study. Recommended: Botany 3010-20. S.


4061 Field Physiolog (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 artistic 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 photography. Recommended: Botany 3010-20.

4080 Field Pteridology (3) Field experience on identification of pteridophytes. 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.

4120 Plant Anatomy (4) Comparative structure of vascular plants. Prereq: 1110-20. S.

4240 Paleobotany (4) (Same as Geology 4240.)

4310 Plant Ecology (4) Interactions between individuals, 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: 3300 or equivalent. S.

4410-20-30 Undergraduate Research Participation (3,2,1) Participation in active research under supervision of staff members. Prereq: junior or senior standing, minimum grade average 3.0, consent of instructor. E.

4510 Plant Tissue Culture (4) Methods for the culture of cells, tissues, and organs including media preparation and maintenance of cultures. Lecture and lab. Prereq: Botany 1110-20 or Biology 1210-20-30 or equivalent and Chemistry 1110-20-30 or equivalent. Recommended: Botany 3010-20, 3210, and 4120; Microbiology 3200 or 3760 and 3519; Ornamental Horticulture and Landscape Design 3030, and Plant and Soil Science 3120.

4530 Field Measurements in Plant Ecology (3) Practices 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 field sites will be scheduled. Prereq: 3300 or equivalent; 1 year of physics and chemistry recommended. F.

GRADUATE Consult the Graduate Catalog for listing of graduate level courses.

**Chemistry (235)**

**Professors:**
- G. Mamantov (Head), Ph.D. Louisiana State; J. E. Bloor, Ph.D. Maryland (England); N. S. Bowman (Emeritus), Ph.D. Princeton; C. A. Buehler (Emeritus); Ph.D. Ohio State; W. J. Bull, Ph.D. Illinois; J. Q. Chancellor (Emeritus); Ph.D. Stanford; D. E. Dean (Emeritus), Ph.D. Michigan; J. F. Eastham, Ph.D. California (Berkeley); W. H. Fletcher (Emeritus), Ph.D. Indiana; G. W. K. Petersen, Ph.D. California (Berkeley); G. K. Schweitzer1, Ph.D. Illinois; D. A. Shirley (Emeritus), Ph.D. Iowa State; W. T. Smith (Emeritus), Ph.D. Ohio State; W. A. Van Hook, Ph.D. Johns Hopkins; E. L. Wehry, Ph.D. Purdue; T. F. Williams1, Ph.D. London (England); J. H. Wood (Emeritus), Ph.D. North Carolina.

**Associate Professors:**
- J. L. Adock, Ph.D. Texas; F. A. Grimm, Ph.D. Cornell; J. M. Harris, Ph.D. Texas (Austin); J. D. Kovac, Ph.D. Yale; C. A. Lane, Ph.D. California (Berkeley); L. J. Magid, Ph.D. Tennessee; F. M. Schell, Ph.D. Indiana; C. Woods, III, Ph.D. North Carolina State.

**Assistant Professors:**
- S. D. Alexandratos, Ph.D. California (Berkeley); C. E. Barnes, Ph.D. University of California (Berkeley); E. Barthnes, Ph.D. Northwestern; K. D. Cook, Ph.D. Wisconsin; M. J. Spanelik, Ph.D. Iowa State.

1Alumni Distinguished Service Professor.

**UNDERGRADUATE**

**For information regarding the Bachelor of Science in Chemistry degree, contact the Department of Chemistry for cooperative program in chemistry, see page 158.**

For students wishing to major in chemistry and desiring a more flexible course of study than the B.S. in Chemistry, there are two programs: the B.S./Concentration A and the B.S./Concentration B. Because these two concentrations are designed for students with different career goals, the following paragraphs should be carefully considered before selecting courses.

A student who decides to major in chemistry should ask the Liberal Arts Advising Center for assignment of a faculty advisor in the Chemistry Department. Further information, concerning the majors in the Chemistry Department, 575 Buehler Hall.

The B.S./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 158), but with greater opportunity for selection of electives outside the department and outside of science. Unlike the Bachelor of Science in Chemistry, the B.S./ Concentration A degree is not approved by the Committee on Professional Training of the American Chemical Society.

Prerequisites to the major are Chemistry 1110-20-30 or (preferably) 1310-20-30, Chemistry 1235-35 Mathematics 1840-50 or 1841-51, Mathematics 1860 or 3861 or Computer Science 1510 or 1610. Corequisite to the major is Physics 2110-20-30. The major consists of Chemistry 2140, 2149, 3211-21-31, 3219-29-39, 4910-20-30, 4920-30, and 10 hours of upper-division work in chemistry including at least one of the following courses: Chemistry 4210, 4220, 4310, 4510, 4550. (Up to 6 hours of Biochemistry 4110-20 or Geology 4610 may be applied to the 10-hour requirement.)

**A minor in chemistry shall consist of the successful completion of 24 hours of chemistry courses numbered 2000 and above including Chemistry 2140-49 (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 4910-20-30 (9 hours).**

**Placement in Freshman Sequences:**

The sequences which meet all requirements of a year of general chemistry and which serve as prerequisite for upper-division courses are 1110-20-30 and 1310-20-30; chemistry majors are strongly encouraged to take the latter sequence and are required to elect 1325-35. The 1510-20-30 sequence has more limited applications; it emphasizes organic and biochemistry and may be used as prerequisite only for 2230 and 3810.

It is possible to move from one sequence to another if permission for substitution is obtained in advance. For example, a student first year to complete 10
series after having completed 1510 may substitute 1510 for 1110 with approval of the chemistry department and may then take 1120 followed by 1130. However, no single quarter of the courses may be substituted for 1120 or 1130. Credit may be received for only one of the courses 1110, 1310, or 1510.

In any chemistry course above the freshman level which has Chemistry 1120-20-30 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 or 1310-20. A student receiving a grade of C or D in Chemistry 1120 or 1128, or encountering in general chemistry, difficulty may be encountered 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.

1110-30 General Chemistry (4,4,4) General courses of theoretical and descriptive chemistry. 1110—Modern atomic theory, chemical bonding, stoichiometry, and quantitative treatment of gas laws. 1120—Quantitative aspects of solution chemistry, kinetics, chemical equilibria, and thermochemistry. 1220—Descriptive chemistry of non-metallic and metallic elements, electrochemistry, and introduction to organic and biochemistry. Must be taken in sequence. 3 hours and 1 lab. E.

1118-28-38 Honors: General Chemistry (4,4,4) (See explanation above.) 3 hours and 1 lab. 1118-30: 1118; 1128-38: 1138-38.

1310-30 General Chemistry (4,4,4) A general chemistry course for chemistry majors. Subject matter similar to 1110-20-30. Must be taken in sequence. 3 hours and 1 lab.

1323-38 Chemical Programming (1,1) A course in which the computer is utilized in solving problems encountered in general chemistry. Required of and 1300 for 1323; 1120, 1128, or 1320 or 1330 or 1335.

1410 Chemistry for Nurses (4) Inorganic, organic, and biochemistry. 3 hours and 1 lab. F.

1420 Chemistry for Nurses (4) Aromatic compounds, organic and biochemistry. 3 hours and 1 lab W.

1510-20-30 Introductory General, Organic and Biochemistry (4,4,4) Introductory course with emphasis on topics relating to living systems. 1510—Biology and molecular structure, gene laws, liquid and solid state, solutions, colloids. 1520—Acids and bases, ionic structure and stoichiometry. 1530—Structure and reaction mechanisms of organic functional groups. Introduction to biochemistry—amino acids and proteins, carbohydrates, lipids, nucleic acids. Must be taken in sequence. 3 hours and 1 lab. S.
Biology (3,3,3) Physico-chemical principles with applications to biological systems. Must be taken in sequence. Not open to students having 3410-20-30. 4140—Gas laws; first, second, and third laws of thermodynamics; equilibria. 4260—Solution chemistry; electrochemistry; kinetics; nuclear chemistry. 4930—Elementary quantum chemistry; optical and magnetic spectroscopy; light, energy, and chemical properties. Prereq: 3231-39, Math 1550-60 or equivalent. 4150F—4920—W, 4930-S.

Biological Chemistry Laboratory (2) Experiments in the physical chemistry of biologically important systems. Coreq: 4920. Not open to students in 3410-20-30-29-39-S.

GRADUATE

Students majoring in chemistry for the M.S. or Ph.D. degree are required to present a final thesis for consideration for degree. All students are encouraged to present a thesis. The master's and doctoral degree requirements, as well as course listings, are found in the Graduate Catalog. The department offers specialization in nine areas for the Ph.D.: analytical, energy, environmental, inorganic, organic, physical, theoretical, chemical physics, and polymer science.

Chinese

See Cultural Studies (Asian Studies).

Classics (257)

Professors:
H. C. Rutledge (Head), Ph.D. Ohio State.

Associate Professors:
G. C. 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.

The Classics major consists of two tracks: Greek and Latin. The Classics major concentrating in Greek may take a minor concentration in Latin. The Classics major concentrating in Latin may take a minor concentration in Greek.

Greek

UNDERGRADUATE

A B.A. major concentration in Greek consists of 39 hours distributed as follows: 30 hours of Greek language courses numbered above 2000, and including 6 hours of Classics 4220 (senior seminar) 9 hours chosen from Classics 2210-20-30, 3310, 3340, 3350, 4101 (maximum of 6 hours with approval of department), History 3121. The student majoring in Classics is strongly encouraged to have as background History 3121 before taking the senior seminar. The student concentrating in Latin is encouraged to begin the study of Greek.

The Latin minor consists of 24 hours distributed as follows: a) 18 hours of Latin language courses numbered above 2000; b) 6 hours chosen from Classics 2210-20-30, 3310, 3340, 3350, 4101 (maximum of 6 hours with approval of department), History 3121. The student majoring in Classics is strongly encouraged to take 3 hours of classics 4220 (senior seminar).

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 C 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, Claxton Education Building.

1110-20-30 Beginning Latin (3,3,3) Must be taken in sequence. 1110-F, W, 1120-W, S, 1130-S.

2000: (b) 6 hours chosen from Classics 2210-20-30, 3310, 3340, 3350, History 3121. The student majoring in Classics is encouraged to take 3 hours of Classics 4220 (senior seminar).

1210-20-30 Beginning Greek (3,3,3) Must be taken in sequence. F, W, S.

2610 Intermediate Greek: Grammar Review and Selected Readings (3) F.

2620 Intermediate Greek: Homer (3) W.

2630 Homer: Iliad (4).

2640Intermediate Greek: New Testament (3) Prereq: 2610 or consent of instructor. S.

2650 Readings in Hellenistic Greek (4) Reading and discussion in religious and secular literature of Hellenistic Greek. Prereq: Classics 2630. May be repeated. Maximum credit 8 hours. (Same as Religious Studies 2650.) A.

3010 Plato (3). A.

3020 Herodotus (3). A.

3030 Euripides (2) A.

4020 Aeschylus, Sophocles (3) A.

4040 Aristophanes (3) A.

4050-60-70 Directed Readings in Greek (3,3,3) F, W. S.

Latin

UNDERGRADUATE

A. B. major concentration in Latin consists of 39 hours distributed as follows: 30 hours of Latin language courses numbered above 2000, and including 6 hours of Classics 4220 (senior seminar) 9 hours chosen from Classics 2210-20-30, 3310, 3340, 3350, 4101 (maximum of 6 hours with approval of the department), History 3121. The student majoring in Classics is strongly encouraged to have as background History 3121 before taking the senior seminar. The student concentrating in Latin is encouraged to begin the study of Greek.

The Latin minor consists of 24 hours distributed as follows: a) 18 hours of Latin language courses numbered above 2000; b) 6 hours chosen from Classics 2210-20-30, 3310, 3340, 3350, History 3121. The student majoring in Classics is encouraged to take 3 hours of classics 4220 (senior seminar).

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, Claxton Education Building.

1110-20-30 Beginning Latin (3,3,3) Must be taken in sequence. 1110-F, W, 1120-W, S, 1130-S.

2510 Intermediate Latin: Grammar Review and Prose Readings (3) For students who have had at least two years of high school Latin, or equivalent. F.

2515 Intermediate Latin: Prose Readings (3) Prereq: Classics 2511 or demonstration of proficiency at that level. W.

2521 Intermediate Latin: Vergil's Aeneid (3) Prereq: Three years of high school Latin (without Vergil) or Classics 2515 (or demonstration of proficiency at that level). S.

2310 Cicero (3) Prereq: 3 or 4 years of high school Latin or Classics 2521. F.

2315 Plautus and Terence (3) Prereq: 3 or 4 years of high school Latin or 2521. S.

2316 Calpilius and Horace (3).

4404 Livy (3) A.

4406 Elegiac Poets (3) A.

4120 Horace, Satires and Epistles (3) A.

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. A.

4310 Selected Readings from Latin Literature (3) A.

4320-30 Selected Readings from Latin Literature (3,3) May be repeated for credit. A.

4403 Horace, Odes (3) A.

4405 Tacitus (3) A.

4406 Lucretius (3) A.

4370 Readings in Medieval Latin (3) A.

GRADUATE

Consult the Graduate Catalog for a listing of graduate level courses.

GENERAL COURSES

2210 Early Greek Mythology (3) Comprehensive study of Greek myths with an emphasis on how they reflect the ancient Greek vision of the universe and man's place in it. Origins and development of Greek myths and the concurrent rise of organized religion. The symbolic use in later cultures of Greek mythic figures and events will be a persistent emphasis. In time the course goes from Bronze Age to about 500 B.C. W.

2220 Greek Mythology in the Classical Period (3) The use of myth in religion, philosophy, and art of Greece from about 500 B.C. to the death of Alexander the Great, with emphasis on new myths and new uses for old myths that reflect the pride and confidence of the Classical Greeks.

2230 Roman Mythology (3) Myths created by the Romans; the gods of the state and the gods of the home. Contribution of myth and ritual to the Roman perception of man's relationship to divinity. Although the first century B.C. is its temporal focus, the course ranges from the Etruscans to the Oriental relations of the Empire, including early Christianity.

2230 Art and Archaeology of Ancient Greece (3) A survey of the development of Greek art with emphasis on architecture, sculpture, and painting with some attention to the minor arts and relationship of art and archaeology. Illustrated lectures.

2330 Art and Archaeology of Etruria and Rome (3) A survey of Etruscan and Roman art, with some attention to the minor arts and urban planning. Classics 2230 is recommended for background. Illustrated lectures.

2010-20 Greek and Roman Literature in English Translation (4,4) 2510-Greek Literature. A survey of the major literature of ancient Greece from Homer to Menander, with emphasis on the sixth and fifth centuries B.C. 2520-Roman Literature. A survey of major literary works of the Romans from Plautus to Tacitus. How the Romans borrowed from the Greeks and then achieved their own artistic identity by the time of Vergil's Aeneid.
3270 Medical Terminology (3) Prepares the student to make sense of, and so more easily remember, thousands of complex medical words through a knowledge of the simple classical roots which combine to form most medical vocabulary. E.

3274 Word Power: Basic Vocabulary from Greek and Latin (3) Vocabulary building from Greek and Latin bases. General, non-technical vocabulary. Exercises in English etymology. F, W, S.

3310 Art and Archaeology of the Aegean Bronze Age and Early Greece (3) Troy, the Cyclades Islands, Greek 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. W.

3340 Cities of the Greek and Roman World (3) Archaeological survey of Greek and Roman cities from 400 B.C. to 400 A.D. with emphasis on development of city planning and quality of life. Such cities as Mycenae, Athens, Prere, Alexandria, Rome, and Lepcis Magna will be studied. F.

3350 Shrines 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 authorities. The study of great shrines and sanctuaries in Greek and Roman life. A.

3380 Greek Civilization (3) A survey of major aspects of ancient Greek civilization: religion, fine arts, political life, pan-Mediterranean relations, emphasizing the sixth and fifth centuries B.C.

3382 Roman Civilization (3) A survey of major aspects of ancient Roman civilization: political institutions, religion, art and architecture, daily life revealed by Pompeii, Herculaneum, and Rome itself.

3383 Women in the Greek and Roman World (3) A study of the condition of women in the apparently male-dominated world of Classical Greece and Classical Rome. The evidence from literature, vase paintings, and other arts is examined from the age of Homer to the second century A.D. (Same as Women's Studies 3830.)

4101 Foreign Study (1-16) See page 158. E.

4220 Seminar in Classical Studies (3) Intended to conclude the Classics major, the course surveys the field of classical studies today. Prereq: Four courses in the department in the areas of both philology and archaeology; the impact of the decipherment of Linear B; the study of the ancient world using literature, vase paintings, and other arts; study of ancient city planning and urban development; the study of women in society; development of the city state; and political, social, and cultural background in a higher level language. Prereq: Consent of program. W.

4410 Special Topics in Classical Civilization (1-3) Topics in art, literature, religion, and society of Greece and Rome. May be repeated until the total of 9 hours is reached. Consent of department. A.

4510 Selected Readings in Latin Literature in Translation (3) Content varies; may be repeated for credit with consent of department. A.

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 course. May be repeated for credit to a maximum of 12 hours. Consent of program. A.

GRADUATE Consult the Graduate Catalog for listing of graduate level courses.

Comparative Literature

See Cultural Studies.

Computer Science (266)

Professors:
J. S. Butler (Acting Head), Ph.D.; D. Iwaw; R. T. Gregory (Emeritus), Ph.D.; D. Illion; K. C. O'Kane, Ph.D.; Pennsylvania State; G. R. Sherman, Ph.D.; Purdue; M. G. Thomson, Ph.D. Duke.

Associate Professors:

Assistant Professors:

Instructors:
J. W. Mayo, M.S. Tennessee.

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 department office, 8 Ayres Hall, or from the Liberal Arts Advising Center, 220 Ayres Hall.

A.B.S. major: Computer Science 1610 and 1620 are prerequisites to a major in computer science which consists of 2215, 2610, 2710, 3155, 3200, 4510, 4550, and an additional 15 hours selected from computer science intermediate and advanced courses. Also required are Math 2840-50-60.

Minor: A minor in computer science consists of 2610 (and its prerequisites 1610 and 1620), 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 department, and the demonstrated ability to 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 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 courses required 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.

A student must have a Computer Science grade point average as described above of 2.50 or better to graduate with a major in Computer Science. If a student's Computer Science average drops below that average at any time, 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, 1982. 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 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 (3) The computer as a tool of varied uses in modern world; emphasis on basic programming in FORTRAN. Problem-solving process; organization and characteristics of digital computers. Survey of applications of computers in various disciplines. Students may not receive credit for both 1410 and 1510.

1610 Introduction to Structured Programming (3) Intro- duction to computer programming, using structured techniques. Problem solving and algorithm development. Organization and characteristics of modern digital computers.


2215 Discrete Structures (3) Introduction to discrete structures useful in computer science. Sets, set logic, Relations, functions, Proof techniques, induction, logic, Graphs and graph properties. Prereq: 1620 and Math 1850. (Same as Math 2215.)

2610 Programming Techniques (3) Problem formulation and solution. External devices and direct access input and output. For students who have programming background in a higher level language. Prereq: 1610-20.

2710 Machine Organization (3) Elementary computer architecture. Introduction to machine and assembly language programming, representation of data, micro- programming. Prereq: one course in computer programming.

3010 Computers and Society (3) Study of the computer as a tool of varied uses in modern world; emphasis on learning FORTRAN programming, not for Computer Science majors. Students may not receive credit for both 1410 and 1510. Intended primarily for students in College of Business Administration.

3020 Computers and Society (3) History of computing and computer technology. Emphasis on applications in artificial intelligence, humanities, social sciences, sciences and engineering; computing in foreign countries; computer-assisted instruction; future advances in computing; careers in computing. Prereq: Consent of instructor.

3150 Introduction to Numerical Algorithms and Pro- gramming (3) Roots of equations, systems of linear equations, least-squares data fitting, numerical integration, numerical methods for ordinary differential equations. Introduction to programming in FORTRAN. Students may not receive credit for both 3150 and 3215. For students with a knowledge of FORTRAN should take 3155. Prereq or coreq: Math 2860. (Same as Math 3215.)

A second prerequisite is computer science grade point average as described above of 2.50 or better to graduate with a major in Computer Science. If a student's Computer Science average drops below that average at any time, 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, 1982. 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.
3410 Computer Programming—COBOL (3) Computer programming in business-oriented language COBOL. Prereq: one course in computer programming.

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. Study of statistical analysis with hand calculators and computer analyses such as frequency distributions, percentiles, data reduction correlation and regression, analysis of variance. Not for credit for computer science majors. Prereq: Statistics 2100 or equivalent.

4330 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 advisor. Prereq: Consent of instructor. May be repeated. Maximum credit 9 hours.

Intermediate and Advanced Courses

3155 Introduction to Numerical Algorithms (3) Roots of equations, systems of linear equations, least-squares data fitting, numerical integration, numerical methods for ordinary differential equations, 3150 and 3160 not for credit; students with no knowledge of FORTRAN should take 3150. Prereq: 1510 or 1510 or consent of instructor. Prereq or coreq: Math 2860. (Same as Math 3155.)

3180 Logic Design of Digital Systems (3) Introduction to Boolean algebra and design of combinational circuits. Presents gate and flip-flop characteristics. Design of clocked sequential circuits and other systems containing memory. Introduction to microcomputer architecture and system components to include basic structure and function of arithmetic, storage, input/output, and control systems. Instruction set capabilities and machine language programming. Prereq: EE 3010 or CS 3150, or CS 2710. 3 hours including biweekly lab. (Same as Elec. Eng. 3180.)


4050 Number Systems for Digital Computers (3) Floating-point number systems including fixed-point representation, multiple-modulus residue number representation, finite-segment p-adic representation, floating-point computation, finite fields, and exact computation using digital computers. Prereq: 3155.

4210 Introduction to Artificial Intelligence (3) Intelligent programs that simulate human behavior. Computer representation of knowledge, problem solving and search, game playing, automated deductive systems, natural language understanding, computer vision and learning. Computer implementation of AI problems. Prereq: 4510. (Same as Electrical Engineering 4510.)

4225 Numerical Solution to Equations and Numerical Approximations (3) (Same as Math 4225.)

4235 Numerical Methods for Ordinary Differential Equations (3) (Same as Math 4235.)

4245 Numerical Linear Algebra (3) (Same as Math 4245.)

4470 Programming Languages (4) Comparison and analysis of programming languages, design features, and implementation. Processors, operations, security, control, data control, and storage management. Detailed discussion and programming experience with one of the following: LISP, either SNOBOL, APL, or SIMULA. Prereq: 4510.

4510 Data Structures and Non-numeric Programming (3) Data structures and algorithms for their manipulation. Arrays and orthogonal lists; stacks, queues, rings, doubly-linked lists, trees, dynamic storage allocation; organization of files; programming languages for information structures. Prereq: 1620 and 2610.

4550 Systems Programming (3) Computer organization and design of operating systems, computer architecture and design of computers, representation of information, microprogramming, software systems, input/output systems, processors, macro assemblers. Prereq: 3520 or equivalent.

4570 Introduction to Database Management Systems (3) Hierarchical, network, and relational models. Logical and physical views of data. Data definition and data manipulation languages. Data independence. Implementation and operational considerations such as performance, integrity, security, and reliability. Prereq: 4510 or equivalent.

4590 Advanced Systems Programming (3) Advanced operating systems programming. Topics include multitasking, overlays, advanced I/O techniques, high-level language macros, interrupt handling, teleprocessing facilities, virtual systems (all in a high-level language), and OS utilities. Prereq: 4510 and 4550.

4610 Operating Systems—Concepts and Facilities (3) Detailed examination of a major operating system. Memory, processor, device, and data management. Interrupts, machine-level I/O, loaders and relocation device characteristics, data set organizations, SPOOLing. Prereq: 4550 and 4510. Students may not receive credit for both 4610 and 8410.

4620 Operating Systems—Case Studies (2) Alternatives in operating system design, dynamic relocation, paging, segmentation, time sharing, time slicing, protection, concurrency, real time systems. Examples from operating systems analyzed as appropriate. Prereq: 4610 or equivalent or consent of instructor. Students may not receive credit for both 4620 and 8420.

4660 Principles of Compiler Design (3) Techniques of compiler design, scanning and parsing of languages described by regular and context-free grammars. Prereq: 4510 and 4710.


4750 Interactive Computer Graphics (3) Point plotting, vector generation, interactive graphical techniques, two- and three-dimensional transformations, perspective depth, hidden line elimination, shading, software and hardware system design. Discussion of use of these techniques in design, problem solving, mapping, architecture, and many other areas. 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.)

4820 Introduction to Pattern Recognition (3) (Same as Elec. Engr. 4820.)

4830 Digital Image Processing (3) (Same as Elec. Engr. 4830.)

4850 Small Computer Systems (3) (Same as Elec. Engr. 4850.)

4910 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.

4980 Special Topics in Computer Science (1-4) Maximun credit 18 hours with consent of department. Prereq: recommendation of Comp. Sci. staff.

GRADUATE Consult the Graduate Catalog for listing of graduate level courses.

Cultural Studies
Director: Dr. Charles O. Jackson

Basic Faculty:
M. Anderson, Ph.D. Special Programs. Donald M. Fiere, Ph.D. Russian; C. Fleming, Ph.D. Special Programs; E. J. Giesinger, Ph.D. Romance Languages.
R. W. Gwynne, Ph.D. Special Programs; M. H. Hankeisman, Ph.D. Romance Languages; T. J. Hefferman, Ph.D. English; M. D. Boardman, Ph.D. Special Programs; J. O. Hodges, Ph.D. Special Programs; W. L. Humphreys, Ph.D. Religious Studies; C. O. Jackson, Ph.D. History; K. Katz; Ph.D. German; I. Leki, Ph.D. Special Programs; C. J. Maland, Ph.D. English; D. M. Morrow, M.A. Special Programs; M. L. Osborne, Ph.D. Philosophy; M. E. Peak, M.A. Special Programs; H. C. Rutledge, Ph.D. Classics; S. E. Wallace, Ph.D. Sociology.

The ideal curriculum encourages not only proficiency in a given field of knowledge but also the comprehension of similarity and complementarity between areas of intellectual endeavor. One answer to the need for fusion and integration of knowledge is the interdisciplinary program. The college has joined the resources of several departments to offer a cultural studies major with concentrations in Afro-American Studies, American studies, Ancient Mediterranean Civilizations, Asian studies, comparative literature, Latin American studies, linguistics, Medieval studies, Russian and East European studies, and urban studies. Minors are provided in Afro-American Studies, Asian studies, comparative literature, Latin American studies, linguistics, Medieval studies, urban studies, and women's studies.

Afro-American Studies (022)

The Afro-American Studies Program (AAS) offers both a concentration and a minor under the general Cultural Studies Program of which AAS is a part. Courses in the Program are located in several colleges and numerous departments as well as those offered by the AAS Program. The requirements are: Concentration: Afro-American Studies 2010-2020 plus 4310 and 4103 are required courses for B.A. majors. In addition to courses offered by AAS Program, courses from at least two other departments must be included in the 36 hours required for a minor. The 24 of which must represent upper-division hours.

Minor: Afro-American Studies 2010-2020 are required courses, with 16 additional hours at the upper-division level needed to complete the major. The 24 of which must represent upper-division hours.

Minor: Afro-American Studies 2010-2020 plus 4310 and 4103 are required courses for B.A. majors. In addition to courses offered by AAS Program, courses from at least two other departments must be included in the 36 hours required for a minor. The 24 of which must represent upper-division hours.

For further information consult the chairperson of the Afro-American Studies Committee, Mr. Marvin Peak.

Afro-American Studies (022)

1510-20 Elementary Swahili (4.4) Taped language program. Must be taken in sequence.

1520-20 Introduction to Afro-American Studies (4.4) 2725 Black Art (4) (Same as Art 2725.)

2930 The Biology of Human Races (3) (Same as Anthropology 2930.)

3140-50 Directed Readings in Afro-American Studies (1.1,1) Designed for students who are inter-
4950 The Afro-American Experience to 1865 (3) (Same as History 4950.)
4960 The Afro-American Experience Since 1865 (3) (Same as History 4951.)

Approved Area Courses
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)
English 2540 The Literature of Black America (4)
English 4610-20-30 Black Literature (3,3,3)
Geography 3830 Geography of Africa (3)
History 1950-60 Afro-American History: An Introduction (4,4)
History 2950 Introduction to Afro-American History (3)
Music 3350 Introduction to Afro-American Music (4)
Music 4270 Evolution of Jazz (3)
Political Science 3561-16 Black Africa: The Politics of Change and Stability (4,4) (Same as Political Science 3565.)
Political Science 3565 Minority Group Politics in the U.S. (4)
Psychology 4880 Afro-American Psychology (4)
Religious Studies 3550 Religion and Racism in America (4)
Religious Studies 3560 Black Religion in America (3)
Sociology 3330 Race, Class, and Power (4)
Sociology 3340 Sociology of Poverty and Inequality (4)
Sociology 4820 American Minority Ethnic Groups (4)

Recommendations for the concentration and the minor:
(a) Those with a concentration in Afro-American Studies are encouraged to take a second major, with which an individually designed program in Afro-American Studies can be correlated.
(b) Students should seek academic advising from the Chairperson of Afro-American Studies program for courses for the concentration or the minor which relate to career plans, preparation for graduate study, and relationship to the second major.
(c) Those with a concentration and a minor are strongly encouraged to combine classroom and experiential learning through a careful selection of courses, e.g. Afro-American Families 4810 and/or Afro-American Studies 4102.

American Studies (099)
History 2510-20 (or equivalent honors courses) are prerequisite to a concentration in American studies which consists of 36 quarter hours: English 3010-20-30, American Studies 3010 and 4010, and 21 hours of upper-division electives dealing with the American experience. Nine hours of the elective group must be from one of the following disciplines: anthropology, economics, political science, or sociology. A list of acceptable elective courses is published annually by the American Studies Committee.

For further information consult the chairman of the American Studies Committee, Dr. Charles Jackson.
3010 Introduction to American Culture (3) Explores dynamics and nature of contemporary American culture.
3233-34 Forms of Popular Literature and Culture (3,3) (Same as English 3233-34.)
3445 Film and American Culture (3) Examines American film as both works of art and social documents. By placing a range of films in their historical context and analyzing their implicit or explicit cultural values, students explore the relationships between the medium of film and American culture in the twentieth century. (Same as English 3445.)
4010 Topics in American Culture (3) Content varies. May be repeated once.

Asian Studies (145)
The Asian Studies concentration consists of 40 credit hours from the upper-division courses of Asian Studies and approved departmental offerings. 20 of the hours must be taken from courses listed within one of the four geographical-cultural areas (Islamic World; South Asia; China; Japan), and no more than 12 of those 20 hours can come from one sub-division. Sub-division A includes: Art, Asian Cultures, Literature, Music, Philosophy, and Religious Studies; Sub-division B includes: Anthropology, Economics, Geography, History, Political Science, and Sociology. Two of the Asian Studies culture courses (Asian Studies 3310-20-30-40) must be taken as part of the concentration. Prerequisite to the concentration is Asian Studies 2510-20. Corequisite to the concentration is competence in a major Asian language of the area of concentration (at the level attained by successful completion of the intermediate level sequence of that language or by demonstration of the equivalent competence.)
The Asian Studies minor consists of Asian Studies 2510-20 and 16 credit hours taken from courses listed within one of the four geographical-cultural areas.

For further information consult the Chairperson of the Asian Studies Committee, Dr. Yen-ching Hao.
5102 Off-Campus Study (1-12) See page 160.
5103 Independent Study (1-12) See page 160.

CHINESE(249)

Asian Studies 2531-32-33 Elementary Chinese I, II, III (4,4,4) Taped language program. Must be taken in sequence.
Asian Studies 4531-32-33 Advanced Chinese I, II, III, IV (4,4,4) Taped language program. Prereq: 2531-32-33 or equivalent or consent of instructor. Must be taken in sequence.
Asian Studies 4531-32-33 Advanced Chinese I, II, III, IV (4,4,4) Taped language program. Prereq: 2531-32-33 or equivalent or consent of instructor. Must be taken in sequence.

HEBREW (458)

Asian Studies 2831-32-33 Elementary Modern Hebrew I, II, III (4,4,4) Taped language program. Must be taken in sequence.
Asian Studies 4831-32-33 Advanced Chinese I, II, III, IV (4,4,4,4) Taped language program. Prereq: 2831-32-33 or equivalent or consent of instructor. Must be taken in sequence.

JAPANESE (589)

Asian Studies 2631-32-33 Elementary Japanese I, II, III (4,4,4) Must be taken in sequence.
Asian Studies 2631-32-33 Elementary Japanese I, II, III, IV (4,4,4,4) Taped language program. Prereq: 2631-32-33 or equivalent or consent of instructor. Must be taken in sequence.
Asian Studies 4740-50-60 Elementary Japanese I, II, III, IV (4,4,4) Class will include conversation, drill, and composition practice with native speaker. Must be taken in sequence. Prereq: Asian Studies 2631-32-33 or equivalent.

PERSIAN (744)

Asian Studies 2731-32-33 Elementary Persian I, II, III (4,4,4) Taped language program. Prereq: 2731-32-33 or equivalent or consent of instructor. Must be taken in sequence.

SANSKRIT (895)

4770-80-90 Intermediate Sanskrit I, II, III (4,4,4) Taped language program. Must be taken in sequence.

Approved Area Courses
(a) Art, Asian Cultures, Literature, and Music
Art 3775 Art of Indian Asia (4)
Art 3776 Chinese Art (4)
Art 3777 Japanese Art (4)

Asian Studies 3310 Indian Culture (4)
Asian Studies 3320 Chinese Culture (4)
Asian Studies 3330 Japanese Culture (4)
Asian Studies 3340 Islamic Culture (4)
Asian Studies 3610 The Literature of India in English Translation (4)
Asian Studies 3650-60 Japanese Literature in English Translation (4,4)
Asian Studies 3670 Islamic Literature in English Translation (4)

Music 2460 Introduction to Ethnomusicology (3)
(b) Economics, Geography, History, and Political Science
Comparative Literature (260)

A concentration in comparative literature consists of 39 hours including Comparative Literature 4010, 4012-22-32, 9 hours of literature courses numbered 3000 and above, and Classics 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: Classics, English, German 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 9 hours of literature courses numbered 3000 and above, either in English or in a foreign language, from at least two of the following departments: Classics (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 chairperson of the Comparative Literature Program.

Approved Area Courses

| Classics 2210-20-30 Greek and Roman Mythology (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) |
| English 3910-20-30-40 Comparative Literature (3,3,3,3) |
| English 4720 Folktale (3) |
| English 4730 Popular Ballad (3) |
| German 4030 German Drama in English Translation (3) |
| German 4040 The Modern German Novel in English Translation (3) |
| German 4050 The Faust Legend (3) |
| Russian 3210-20-30 Survey of Russian Literature in English Translation (3,3,3) |
| Romance Languages 4010 Masterpieces of French Literature in English Translation (3) |
| Romance Languages 4020 Masterpieces of French Drama in English Translation (3) |
| Romance Languages 4030 Masterpieces of Spanish Literature in English Translation (3) |
| Romance Languages 4040 Masterpieces of Spanish Drama in English Translation (3) |
| Romance Languages 4050-60-70 Dante and Medieval Culture (3,3,3) |

Ancient Mediterranean Civilizations

The concentration in Ancient Mediterranean Civilizations consists of Classics 3810, Classics 3820, Religious Studies 2611, and 28 additional hours from the following list, distributed in such a way that no more than 20 hours are in any one of the three divisions:

(a) Ancient Near Eastern Cultures: History 3751, 3752; Religious Studies 3110, 3120, 4210.

(b) Greek Culture: Classics 2210, 2220, 3310, 3320, 3340, 3350, 4010, 4220 (where applicable), 4230 (where applicable), History 3780; Philosophy 3111, 4410, 4420; Political Science 3801.

(c) Roman Culture: Classics 2230, 2330, 3340, 4220 (where applicable), 4510; History 3770; Religious Studies 3311-12, 3330, 4310, 4640.

Courses of variable content, topics courses, reading and research, off-campus, or foreign study in the Departments of Art, Classics, History, Philosophy, or Religious Studies can be applied to the three divisions as appropriate.

Students are encouraged to satisfy the Foreign Language requirement with Greek, Latin, or Hebrew.

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, Political Science 3625-26, and Geography 3800 or 3790 and 15-18 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, or Senior Seminar 4970.

Two years of Spanish or Portuguese or a practical working knowledge acquired independently are a prerequisite.

Minor: Consists of 24 quarter hours selected from Geography 3800 or 3790, History 3870-80, 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, 2510—Pre-Colonial and Colonial periods of South America to independence era; 2520—Latter 19th century and the Modern period.

2910-20 Spanish and Spanish American Literature in English Translation (3-4, 3-4) 2910—Masterpieces of classical Spanish literature. Cervantes, realism and the mystical novel, regional mystics, Golden Age Theatre, 2920—Masterpieces of 20th century Spanish literature. Lamas, Lorca, Barba, Ortega, 2930—Contemporary Spanish American fiction: Marquez, Borges, Fuentes, Asturias. No change in credit hours after add deadline. Option of 4 hrs. credit must present an appropriate amount of extra work above that required for 3 hrs. (Same as Romance Languages 2910-20-35).

3310-20-30 Aspects of Spanish American Literature (3,3,3) (not precolony) in courses numbered 3000 and above that required for 3 hrs. (Same as Romance Languages 3310-20-35). 3310-30 Aspects of Spanish American Literature (3,3,3) (same as above) in courses numbered 3000 and above that required for 3 hrs. (Same as Romance Languages 3310-30). 3510-20 Aspects of Portuguese Literature (4,4) Prereq: 2520 or equivalent. Recommended for literature majors. (Same as Romance Languages Portuguese 3510-20.)

4000 Peoples and Cultures of Mesoamerica (3) Ethnographic survey of aboriginal peoples and post-conquest changes in Indian culture. Emphasis upon analysis of small rural communities using modern village studies as source materials. Recommended prereq. 2530. (Same as Anthropology 3580.)

2625-26 Latin American Government and Politics (4,4) (Same as Political Science 3625-26.)

3790 Geography of Middle America (4) Covers Mexico, Central America, and the West Indies. Not open to students who have taken 3740, 3770, or 3780. (Same as Geography 3790.)

3800 Geography of South America (4) Not open to students who have taken 3730, 3750, or 3760. (Same as Geography 3800.)

3870-80 History of Latin America (3,3) 3870—Exploration, conquest, settlement, and colonial life to 1800. 3880—Major countries of South America, 1800—present. (Same as History 3870-80.)

4001 Cultural Plurality in Latin America (3) Introduction to value systems and behavioral patterns based on Spanish—Mediterranean, Luso—Mediterranean, indigenous Indian and African heritage existing today in Latin America.

4002 Institutional Changes in Latin America (3) Introduction to government, political parties, the role of the military, the Church, educational institutions, democracy and dictatorship, nationalism, and the family.
Course focus will be on the evolution of the institutions in Luso and Hispanic America.

4010 Independent Research in Latin American Studies (3-9) 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.

4251 The Political Economy of Latin America (3) Description, analysis, and policy issues concerning major economic problems and policies of various Latin American countries. (Same as Economics 4231.)

4310-20-30 Directed Readings in Brazilian and Portuguese Literature (3,3,3) May be repeated with consent of instructor. (Same as Romance Languages Portuguese 4310-20-30.)

4420-30 Latin American Civilization (3, 3) Prereq: 2130, 2520, or equivalent. (Same as Romance Languages Spanish 4420-30.)

4461 Quantitative Analysis of Language (3) (Same as English 4461.)

4727 Politics of Inter-American Relations (4) Analysis of the historical, political, and policy issues concerning international relations in the Americas with emphasis upon imperialism, intervention, and the Cuban revolution. It may be taken as a preparation for the compulsory modern language literature course (Comp. M.A. 7177).

4810-20-30 Topical Survey of Spanish American Literature (3,3,3) 4810—Prose fiction: major examples of the short story and novel. 4820—Poetry: landcape, nostalgia, exiles, and political. 4830—Drama: essay: the modern period. (Same as Romance Languages Spanish 4810-20-30.)

4840 History of Mexico (3) (Same as History 4840.)

4850 History of the Caribbean (3) Caribbean region from discovery and colonization to contemporary times. (Same as History 4850.)

4970 Latin American Studies Seminar (3-4) Selected topics in Latin American studies. May be repeated. Maximum 8 credit hours.

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. (The following languages offer sequences appropriate for this requirement: French, German, Italian, Portuguese, Russian, and Spanish.)

(b) Two quarters of a non-Indo-European language to be selected from the following:

Asian 2431-32 (2433 is recommended); Asian Studies 2531-32 (Chinese, 2533 is recommended); Asian Studies 2631-32 (Japanese, 2633 is recommended); Religious Studies 3140-50-60 (Hebrew); other non-Indo-European languages offered in a sequence of at least four two hour courses and approved by the Linguistics Committee.

Concentration
The concentration shall consist of 38 hours distributed as follows:
(a) 32 hours composed of Audiology and Speech Pathology 3050; English 3330, 3332, 4440; French, German, Russian, or Spanish 4250-60-70; Speech 4811; Linguistics 4120-30.
(b) 6 hours of the following, selected in consultation with the Linguistics Committee:

Anthropology 3420; Audiology and Speech Pathology 3050, 4650, 5651, 5790; Educational Curriculum and Instruction 3562-63; Special Education and Rehabilitation 5220, 5310-20-30; English 3331, 4450, 4455, 4460, 4461, 4471, 4481, 5150, 5170-80; French 4210-20-30, 5110-20-30; German 4310-20: 4810-20-30, 5710-20-30; Linguistics 4000; Philosophy 4830; Psychology 4560, 4660, 5860-70; 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 4120-30; English 3332; French, German, Russian, Spanish 4250-60.

Note: In addition to the above listed courses for the concentration and the minor there are occasional offerings in the Honors Series, decided among the following 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. Coursework would 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 credits 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.

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.

2601 Literature of the Dark Ages (5th-10th Centuries) (3-4) Critical analysis and interpretation of selected classical works from the medieval period. Focuses on tests representing the major genres of the early Middle Ages (e.g., (e.g., hagiographical, biographical). Readings include St. Gregory's Life of St. Benedict, Augustine's Confessions, the life of Charlemagne, etc. Students registering for four credit hours will be assigned additional work to satisfy the fourth credit hour.

2802 Literature of the Later Middle Ages (3-4) Critical analysis and interpretation of selected classical works from the medieval period. Focuses on romance, allegorical and mystical writings from the high and late medieval ages, and comparison of the Nibelungen, the Romance of the Rose, St. Bernard's Commentary on the Song of Songs, Peter Abelard's History of My Calamity, etc.) Should be taken

4271 Introduction to Slavic Linguistics (3) (Same as Russian 4271.)

4440 Sociolinguistics (3) (Same as English 4440.)

4460 Special Topics in English Linguistics (3) (Same as English 4460.)

4461 Quantitative Analysis of Language (3) (Same as English 4461.)

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 ideals, 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 concerned primarily with 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. Coursework would 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 credits 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.

Latin is the most appropriate language for students in the Medieval Studies concentration 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 continue their studies in great depth in the Medieval Studies Committee.

Latin is the most appropriate language for students in the Medieval Studies concentration 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 continue their studies in great depth.
in sequence with 2601. Students registering for 4 credit hrs. will be assigned additional work to satisfy the fourth credit.

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 4010 Italian Drama in English Translation (3)

Italian 4330 Urban Anthropology (3) (Same as Anthropology 4330). and Russian

Russian 4121-20 Medieval Culture (3,3,3) (Same as English 4121-20).

Russian 4150 History of Medieval England (3)

English 4331 Cultural History of the English Language (3) (Same as English 4331).

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 (3,3,3) 4930—The Canterbury Tales. 4940—Troilus and Criseyde and early English

Religious Studies 3070 History of Western Religious Thought and Institutions (4)

Religious Studies 4012-22-32 Special Topics in Comparative Literature (3,3,3) when subject is part of

Religious Studies 3070 History of Western Religious Thought and Institutions (4) when subject is part of

Religious Studies 3080-81-82 Special Topics in Comparative Literature (3,3,3) when subject is part of

Religious Studies 3121 Medieval Philosophy (4)

Comparative Literature 4310 Selected Reading from Latin Literature (3,3,3) (Same as Classics 4310).

Comparative Literature 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

Comparative Literature 4050-60-70 Dante and Medieval Culture (3,3,3)

Comparative Literature 4050-60-70 Dante and Medieval Culture (3,3,3) when subject is part of

French 3210 French Literature in English Translation (3)

French 4350-60-70 Medieval French Literature (3,3,3) (readings in French)

French 4410 French Civilization (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 4050-60-70 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 3765 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 (867)

Prerequisites to the major are the completion of Russian 2110-20-30 and Russian 3710-20. The major consists of 42 hours distributed as follows: Geography 3880; six hours from History 3470-80-90; Philosophy 3550; Political Science 3631 and four additional hours from Political Science 3632, 3756, 4815, and 5370; 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 Fien.

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 E. 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).

Urban Studies Curriculum:

For the concentration and minor, courses may be selected to fill the respective requirements from the following:

Anthropology:

3450 Community Studies in Complex Culture (3)

4440 Urban Anthropology (3)

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 Survey of Planning (3)

Political Science:

3750 The Urban Polity (4)

3760 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 15 hours of appropriate advanced 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 offices, 206 Alumni Hall, 974-2409, or in the Philosophy Department, 807 McClung Tower, 974-7212 or 974-3255.


2015 Images of Women in Literature: Fiction, Poetry, Drama (4) An introduction to the study of women through the roles and stereotypes portrayed in a variety of literary genres (fiction, poetry, and drama), including the works from diverse historical periods and cultures.

2020 Women in Society (4) An examination of the role played by women in various societies during different historical periods, a study of the factors which have limited women's participation in society, and an assessment of social scientists' assumptions about women.

2120 Sex Roles and Marriages (3) (Same as Child and Family Studies 2120.)

3010 Emergence of the Modern American Women
(3) An examination of the role of women in the development of American civilization and values. Major topics include women's legal and political status, the emergence and development of feminism, women and the creative arts, and women's roles in industrial and post—industrial American society.

3098 Women in Music (3) (Same as Music 3095.)
3150 Gender in Society (4) (Same as Sociology 3150.)
3240 Women in French Culture (4) (Same as French 3240.)
3310 Women Writers in England and America (3) (Same as English 3310.)
3430 The Concept of Woman (4) (Same as Philosophy 3430.)
3435 Philosophy of Feminism (4) (Same as Philosophy 3435.)
3830 Women in the Greek and Roman World (3) (Same as Classics 3830.)
4000 Topics in Women's Studies (4) Content varies. May be repeated.
4110 Psychology of Sex Role Development (3) (Same as Psychology 4115 and Educational Counseling and Psychology 4110.)
4280 Women in European History (4) (Same as History 4280.)
4290 Women in American History (4) (Same as History 4290.)
4430 Women's Health (3) (Same as Health Sciences 4430.)
4560 Rhetoric of the Women's Rights Movement (4) (Same as Speech 4560.)
4830 Afro-American Women in American Society (4) (Same as Afro-American Studies 4830.)
4870 Contemporary Research in the Behavior of Women (4) (Same as Psychology 4870.)

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. May be repeated for credit up to maximum of 12 hours.
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 160 and 173.
4102 Off-Campus 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 160 and 173.
4103 Independent 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 160 and 173.
GRADUATE Consult the Graduate Catalog for listing of graduate level courses.

Ecology (278)
Dewey L. Bunting, Chairman

Basic Faculty:

The graduate program in ecology offers Master of Science and Doctor of Philosophy degrees. This interdisciplinary 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 for graduate 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 academic and research facilities. The Great Smoky Mountains, Cumberland Plateau, valley and ridge topography, TVA lakes, and wild rivers provide locally 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.

GRADUATE Consult the Graduate Catalog for listing of graduate level courses.
ENGLISH 3330, English 3331

Three English courses at the 3000-4000 level; four other courses in creative writing at the 3000-4000 level; a two-course sequence in expository, technical, and mechanics. English 1211, 1212—Writing and language, how we are influenced by verbal manipulation in education, politics, and media. Recommended and technical writing, A, B, C, I, NC, W grading. F, W, S.

1018-28-38 Honors: English Composition (3, 3, 3) Open only to those students selected on the basis of placement scores and high school record. Grading scale and course load the same as regular sequence. 1018— Expository writing based on study of non-fiction prose. Introduction to research-based writing. 1038—Analytical and research writing based on study of great literature. Students receiving a grade below B in 1018 will complete a year's work in English composition by taking 1020 and one course on the 1030 level; students receiving a grade of B or A also receive credit and a grade of A 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. 1018-F, 1038-W.

1221 Written and Oral English for Foreign Students (8) Emphasis on the more advanced structures of English grammar and on paragraph writing. Required during the first quarter of residence of foreign students who have completed the Freshman English Sequence. 1018— Expository writing based on study of non-fiction prose. Introduction to research-based writing. 1038—Analytical and research writing based on study of great literature. Students receiving a grade below B in 1018 will complete a year's work in English composition by taking 1020 and one course on the 1030 level; students receiving a grade of B or A also receive credit and a grade of A 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. 1018-F, 1038-W.

1261 English Pronunciation for Foreign Students (3) Sounds and intonation patterns of American English and relation of spelling to sound. Designed to improve student's ability to speak and understand English. May be repeated. Maximum credit 6 hours. S/NC. (Same as Audiology and Speech Pathology 1261.)

1431 English Composition for Foreign Students (3) Composition and reading for students whose native language is not English. Emphasis on paragraph and composition organization with attention to grammar and mechanics. English 1431 replaces English 1011 for students with less than one year of college study in English. 1018— Expository writing based on study of non-fiction prose. Introduction to research-based writing. 1038—Analytical and research writing based on study of great literature. Students receiving a grade below B in 1018 will complete a year's work in English composition by taking 1020 and one course on the 1030 level; students receiving a grade of B or A also receive credit and a grade of A 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. 1018-F, 1038-W.


2140 Creative Writing: Fiction and Poetry (4) Practice in writing poetry and fiction combined with study of models and techniques. 2510-20 English Masterpieces (4, 4) 2510—To the mid-18th century. 2520—Since the mid-18th century. F, W, S.

2531-32-33 American Masterpieces (4, 4, 4) Focusing on major periods and movements of American literature from the beginnings to 1890; 2532 covers the literature from 1890 to the present; 2533 examines political and social issues in American literature exclusively, as a distinct literary movement.

2560-70-80 Literature of the Western World (4, 4, 4) 2560—Ancient and medieval. 2570—Renaissance and the Baroque. 2580—18th century and 19th and 20th centuries. 2560-F, W, S; 2570-W, 2580-S.

1 Replaces the Freshman English Sequence 1510-20.
2 Replaces English 1151-12.
3 Replaces English 1141-41-51 replaces English 1010-29-31, 1032, 1033.
4 Replaces English 1341-41-51 replaces English 1010-29-31, 1032, 1033.
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) Modern Southern literary renaissance, Fugitives and others, each student may develop a coherent selection of electives outside the department, and may develop interdisciplinary problems or situations of contemporary interest are studied in depth, illustrating geographical points of view and techniques. Need not be taken in sequence. 1610-E; 1620-W, S.

1610-20 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. 3 hr. lecture and 2 hrs. of lab per week. 1810-F; 1820-W, S.

1910 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.

2110-20-30 Geographical and Demographical Analysis (4,4,4) Characteristics and processes of earth's surface and lower atmosphere; their interaction to produce world pattern of distinctive environments significant to man. Must be taken in sequence. 3 hr. lecture and 2 hrs. of lab per week. 1810-F; 1820-W, S.

2461 Quantitative Analysis of Language (3) Introduction to techniques of the study of variation in language both in spoken and written texts, including literature. Emphasis on identifying questions, collecting, analyzing, and interpreting data. Implications for linguistic and literary theory. Prereq: English/Linguistics 3330 or 3450 or consent of instructor. (Same as Linguistics 4461.)

4461 Sociolinguistics (3) The study of language in relation to society. Empirical and theoretical study. Emphasis both on individuals and on large-scale social units such as tribes, nations, and social classes. Prereq: 3330 or Linguistics 2000 or consent of instructor. (Same as Linguistics 4450.)

4450 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 (3,3,4,4) Presented linguistics in teaching and learning of English as second or foreign language. Phono-logical and grammatical structure of present-day English. Analysis of differences (phonological, grammatical, social) between English and another language. Prereq: Second year of a foreign language. 4451-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 faculty member of the staff. Prereq: 4471. (Same as Linguistics 4471-81.)

4610-20 Black Literature (3,3) Trends and developments.

4640 Black American Literature and Aesthetics (3) Evaluation of major texts in Black American Literature and Aesthetics since 1899, with emphasis on the more recent works.

4651 Southern Literature through the Nineteenth Century (3,3,3) Southern writing from colonial period to end of 19th century, including frontier humorists and local color writers.

4652 Southern Literature in the Twentieth Century (3) Modern Southern literary renaissance, Fugitives and others, each student may develop a coherent selection of electives outside the department, and may develop interdisciplinary problems or situations of contemporary interest are studied in depth, illustrating geographical points of view and techniques. Need not be taken in sequence. 3 hr. lecture and 2 hrs. of lab per week. 1810-F; 1820-W, S.

4660 Emerson and Thoreau (3)

4680 American Humor through Mark Twain (3)

4721-31-41 Ballad and Folktale (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, Milton, Dryden, and Swift.

4930-40 Chaucer (3,3) 4930—The Canterbury Tales; 4940—Troilus and Cressida and early poems.

Graduate Consult the Graduate Catalog for listing of graduate level courses.

French See Romance Languages.

Geography (415)

Professors:

S. R. Jumper (Head), Ph.D. Tennessee; C. S. Aiken, Ph.D. Georgia; T. L. Bell (Assistant Dean for Research), Ph.D. Iowa; E. H. Hammond, Ph.D. California (Berkeley); R. G. Long (Emeritus), Ph.D. Northwestern; C. W. Minkel (Dean for Graduate Studies), Ph.D. Syracuse; C. T. Pauckett, Ph.D. Colorado; T. H. Schmude, Ph.D. Wisconsin; T. J. Wilbanks (adjunct), Ph.D. Syracuse.

Associate Professors:

T. J. Blasing (Adjunct), Ph.D. Wisconsin; R. A. Forresta, Ph.D. Rutgers; L. M. Pulipher, Ph.D. Southern Illinois.

UNDERGRADUATE

B.A. Major: A minimum of eight hours at the 1000 or 2000 level is required as an introduction to a major. Geography 3700, 4100, 4210, and 4990 are also required, along with 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, D, and E below:

A. Physical Geography: 3510, 3520, 3530, 4550;
B. Economic Geography: 3410, 3430, 3490, 4075;
C. Cultural Geography: 3000, 3450, 3560, 3610, 3660, 4240;
D. Regional Geography of the United States: 3810, 3920, 3930, 3940;
E. Regional Geography of Foreign Areas: 3790, 3800, 3830, 3840, 3870, 3880.

Students in the 3/2 program are encouraged to take 12 of their 28 upper-division credit hours from group B.

For those pursuing a program leading to professional employment or graduate study in geography, 4210 and/or a senior project under 4103 are 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 undergraduate 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.

1910 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.

2110-20-30 Geographical and Demographical Analysis (4,4,4) Characteristics and processes of earth's surface and lower atmosphere; their interaction to produce world pattern of distinctive environments significant to man. Must be taken in sequence. 3 hr. lecture and 2 hrs. of lab per week. 1810-F; 1820-W, S.

24607 Cultural Geography (4) Basic concepts of culture; methods and techniques as applied to cultural geography; world patterns of cultural phenomena.

2700 Maps and Aerial Photographs (4) Introduction to scales, sources, uses, design, and production of maps, aerial photos, and other forms of spatial images.
Geological Sciences

Professors:
K. R. Walker (Head), Ph.D. Yale; H. J. Klepeis (Emeritus), Ph.D. Ohio State; C. O. Kopf, Ph.D. Columbus; K. C. Misra, Ph.D. Western Ontario; R. E. McLaughlin, Ph.D. Tennessee; L. A. Taylor, Ph.D. Lehigh; J. G. Walls (Emeritus), Ph.D. North Carolina.

Associate Professors:
D. W. Byerly, Ph.D. Tennesse; T. W. Broadhead, Ph.D. Iowa; M. Clark, Ph.D. Pennsylvania State; H. Y. McSween, Ph.D. Harvard.

Assistant Professors:

The Department of Geological Sciences provides training for (1) those who plan careers as professional geologists in industry, federal, state, educational, or other fields which utilize earth scientists; and (2) those who seek a general knowledge of geology and its relationship to the 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 guided in planning the program by a departmental advisor. A list of advisors is available in the departmental office.

UNDERGRADUATE

B.S. Major: Prerequisites: Geology 1010, 1020, 1030. Students who have less than one year of high school biology must take Biology 1210, 1220; it is recommended that a student who has had one or more years of high school biology should take any two of the following courses: Biology 1230; Botany 1110, 1120; Zoology 1118, 1128; Biology 3130. Chemistry 1110-20; Physics 1310-20 or 2210-20. In addition, one of the following must be taken: Chemistry 1130 or the third quarter of the physics sequence already taken by a student, Math 1400-50 or 1460-52, and one of the following: Math 1850, 1862 or 3000.

Geology Courses

The core: Geology 3180, 3190, 3260, 3310, 3360, 3370 (21 hours). For breadth: 12 hours chosen from the following: Geology 4110, 4115, 4230, 4320, 4510, 4550, and 4610. In addition, all senior majors must take at least one quarter of 5300.

Student's Choice: 12 additional hours in any geology courses numbered 3000 or above.

Geography 4440 (field camp), or an equivalent field camp elsewhere, is strongly recommended for students planning a career in geology. Those students unable to take a field camp should take Geology 4310. A student's choice in another field major for both Geology 4310 and 4440.

Minor: Geology 1010, 1020, 1030 are prerequisites to a minor which consists of at least 24 hours in courses numbered 2000 or above.

Geology (424)

1010 General Geology I (4) Introduction to materials of the earth; processes active within the earth and changes they produce. 3 hrs. and one 2 hr. lab or field period.

1020 General Geology II (4) Surface of the earth, including physical processes which shape it; the development of the oceans and sedimentary rocks; fossils and their relationship to geologic time. Prereq: 1010. 3 hrs. and one 2 hr. lab or field period.

1030 General Geology III (4) Reconstructing the history of the earth using both physical, geologic and fossil evidence; a review of important stages in earth history. Prereq: 1020. 3 hrs. and one 2 hr. lab or field period.

2210 History of Life on Earth (4) Chronological account of biological evolution, and societal patterns. Not intended for geology majors. 3 hours and 1 lab or field period.

2310 Resources Crises—Minerals and Energy (4) Evaluation and estimation of reserves and resources. Distinguishing features, present status, and future trends of minerals industry. Appraisal of conventional and alternate energy resources. Resource crisis and possible choices. 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 Geochemical Cycles and the Global Environment (4) Introduction to the use of geochemical cycles for identifying possible environmental problems on a global scale. High school chemistry recommended. 3 lecs. and 1 problem session.

2610 Introduction to Geology for Engineers (3) Material and structures of the earth. For College of Engineering students only. 2 lectures and 1 lab or field period.

1 Math 1840-50 has prerequisites of 2 years high school algebra and one semester of trigonometry or equivalent. Students who are deficient in these subjects may need to take Math 9100 and/or 1500 prior to enrolling in Math 1840-50. Consult mathematics section of this catalog or the Department of Mathematics for details.
2710 Introductory Oceanography (4) Introduction to study of oceans including origin and development of ocean basins and their contained water and sediment masses. 1410 recommended.

3100 Paleoecology (4) Principles of environmental analysis as applied to fossil assemblages and associated rocks. Prereq: 3260 or consent of instructor. 3 hours and 1 lab.

3260 Paleobiology (4) Survey of principles and materials of paleontology as applied to interpretation of earth history. Prereq: 1420. 3 lectures and 1 lab or field period.

3270 Historical Geology of Land Organisms (4) Introduction to the development of terrestrial biotas and ecosystems 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.

3310 Introductory Petrology (4) Introduction to classification and properties of igneous and metamorphic rocks, processes which produce them, and tectonic environments in which they form. Prereq: 3180. 3 lectures and 1 lab. Coreq: 3190.

3330 Geology of East Tennessee (4) Lectures and field excursions. Prereq: 12 hours of geology and consent of instructor.

3360 Stratigraphy-Sedimentation (4) Introductory study of stratigraphic principles and practices and of sedimentary processes and interpretation of depositional environments. Prereq: 1420 and 3180. 3 hours and 1 lab or field period.

3370 Structural Geology (4) Introductory discussion of structures such as folds, faults, joints, cleavage, and primary structures. Laboratory work includes depth and thickness problems. Structure sections, structure contour maps, etc. Prereq: 1420, Math 1830 or equivalent. 3 hours and 1 lab.

3610 Quaternary Geology for Engineers (3) Erosional and depositional processes, landforms, groundwater. 2 lectures and 1 lab or field period. Prereq: 2610 or equivalent.

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.

4110 Principles of Economic Geology (4) Ore-forming processes, classification of mineral deposits, survey of different types of mineral deposits with examples. 3 hrs. and 1 lab. Prereq: 3180, 3190, 3310 or equivalents. Recommended: 4610.

4115 Elementary Applied Geophysics (4) Basic principles of electrical, seismic, gravity, and magnetic surveys. Prereq: 1420, Physics 2220 or 2230. 3 lectures and 1 lab.

4130 Sedimentology (4) Introduction to physical processes of sedimentation: transport of sediments and formation of sedimentary structures, river, flow, wave, and ocean circulation. Prereq: 3310. 3 lectures and 1 lab.

4220 Paleocology (4) Principles of environmental analysis as applied to fossil assemblages and associated rocks. 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 morphology and evolutionary trends in major plant groups and (2) chronological succession and geographic distribution of past plant life 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 trends including comparative paleontological 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 paleontological tools 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 biological association if known. Special emphasis is given to fossil foraminifers, prokaryotes, and palynomorphs. Prereq: 3260 or consent of instructor.

4307 Introduction to X-Ray Methods (1) An introduction to the nature and structure of X-Ray diffraction, fluorescence, and electron microscopy. Prereq: 3160 or consent of instructor.

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.

4320 Introductory Environmental Geology (4) Applications of the geological sciences toward a comprehensive understanding of the effects of geological processes on humans and the effects of human activities on the earth environments. Prereq: 1010-20-30. 3 lectures and one 2 hr. lab or field period.

4330 Regional Geology of the United States (3) Evolution of various geologic provinces within the U.S. with emphasis on the integration of several types of geologic data. Prereq: completion of 21 upper-division requirements for the major. 3 lectures.

4331 Quaternary Geology of North America (4) Quaternary geology of sedimentary processes, stratigraphy, sedimentary basins, glacial and nonglacial North America and oceans. Prereq: 1410 or consent of instructor. Two 2-hour lectures.

4332 Quaternary Paleocology (4) Study of pollen and plant-macrofossils of characterize vegetation and climate change during Quaternary. Prereq: Consent of Instructor. Two 2-hour lectures.

4333 Quaternary Field and Lab Techniques (4) Techniques for the characterization and recombination, including pollen and plant macrofossil identification, description of site stratigraphy, and sedimentology. Prereq: 1410 or consent of instructor. Two 2-hour lectures.

4370 Tectonic Styles (4) The tectonic evolution of structures and their association with metamorphism, plate motions, and stratigraphic assemblages as determined through case study examination of different orogenic belts. 3 lectures and 1 seminar or lab. Prereq: 3370 or consent of instructor.

4440 Field Geology (5) Five weeks' field course, first term summer quarter. Advanced undergraduates or first-year graduates in geology. Employes entire lines of students. Field techniques are demonstrated, practiced, and applied to the solution of geologic problems. Prereq: 12 upper-division hours of geology and consent of instructor.

4460 Geologic Photography, Photogrammetry and Remote Sensing (4) Principles of terrestrial, airborne, and satellite geologic remote sensing, including photographic principles and practice, geometry of terrestrial and aural photography, and principles of nonphotographic remote sensing systems.

4510 Principles of Geomorphology (4) Gradational processes on and near the earth's surface, applied geomorphology, and field work in geomorphology. Prereq: 1430 and 4510. 3 hours 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. Recommended 3310.

4650 Mineral Phase Equilibria (3) Principles of phase chemistry and application of phase equilibria 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. 3310, Math 1830, Physics 1330. Recommended Math 2610 and 2820.

4810 Special Problems in Geology (1-4) Prereq: Consent of instructor. May be repeated. Maximum credit 4 hours.

GRADUATE
The general requirements for master's and doctoral degree as well as course descriptions are given in the Graduate Catalog.

Germanic and Slavic Languages

Professors:
H. Kratz (Head), Ph.D. Ohio State; J. E. Faeth, Ph.D. Pennsylvania; W. H. 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:
D. M. Flane, Ph.D. Indiana; N. A. Lauckner, Ph.D. Wisconsin; D. E. Lee, Ph.D. Stanford; C. J. Mellor, Ph.D. Chicago; U. C. Rittenhoff, Ph.D. Connecticut.

Assistant Professor:
C. Hodges, Ph.D. Chicago; J. Kolodziej, Ph.D. Indiana.

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
or ability. Freshmen are admitted on the basis of high

1510-20

1510-20

German (433)

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 8 hours 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.

2270, 3220, 3221, 3240, 3250, 3260, and 3320 and courses in English translation. Usually include German 3110-20-30. It is recommended that German majors also take 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, (excluding courses in English translation), and usually including German 3110-20-30. It is recommended that German majors also take 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 courses numbered 3010-20-30 and courses in English translation.

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 courses numbered 3010-20-30 and courses in English translation.

Russian (4,4) Must be taken in sequence.

1518-2518-30 Honors: Elementary and Intermediate German (6,6,6) Honors course for students of superior ability. Freshmen are admitted on the basis of high

1110-20-30 Elementary German (3,3,3) Must be taken in sequence.

1518-2518-30 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 obtaining a 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 consists 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 8 hours 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.

2210-20-30 German Literature in English Translation (3,3,3) Survey of German literature from earliest times to the present. No foreign language credit. Writing—emphasis courses. The three—package course fulfills Divisional Distribution Requirement in the Humanities, Part 1 (or any two quarters fulfills the two—package requirement of Part 2 for students who choose philosophical perspectives for Part 1.)

3010-20-30 Elements of German for Upper-Division and Graduate Students. Elements of language, elementary and advanced readings. Open to graduate students preparing for language examinations, and advanced undergraduates with reading 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. Need not be taken in sequence.

3150 Readings in German (3) Selected topics in both literary and non-literary fields. Students or student groups are encouraged to suggest topics for future courses. May be repeated with approval of department. May be repeated for credit. Maximum credit 8 hours.

3210-30-30 Culture of the German—Speaking Peoples (3,3,3) Studies in the culture and life-style of German—speaking peoples from their first contact with the Romans to the present. Readings in English. No foreign language credit. A writing—emphasis course. Fulfills Upper Level Distribution Requirement for Foreign Studies for those who have not satisfied the history requirement with western civilization.

3210-20-30 Conversation and Composition (3,3,3) Prereq: 2130 or equivalent.

ADVANCED UNDERGRADUATE AND GRADUATE

4101 Foreign Study (1-16) See page 160.

4102 Off-Campus Study (1-16) See page 160.

4103 Independent Study (1-16) See page 160.

4110-20-30 Studies in Classical and Modern Writers (5,5,5) 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.

4210-30 Dramatic Literature (3,3,3) 4210—Lyric poetry. 4220—Drama. 4230—Narrative prose. 4240—Novel and short story. 4250—In English translation. 1500-20-30 and courses in English literature. Usually open to students who have completed 3110-20-30. May not be repeated for credit. Consent of department required.

4270 Introduction to Germanic Linguistics (3) The phonetics and phonemics of German. German grammar and the German vocabulary from a descriptive point of view. The dialects of German. An introduction to the study of the other Germanic languages.

4310-20 History of German Language (3,3)

4630 German Civilization (3) Prereq: 2130 or equivalent.

4818-28-38 Honors: Senior German (3,3,3) Intended to give student of special aptitude greater opportunity to develop, in independent reading courses. Prereq: Senior standing, with a record of A in half of German courses taken as prerequisite to the 4000 courses, average of B in remainder, and consent of department.

4810-20-30 Advanced Conversation and Composition (3,3,3) Prereq: 3810-20-30 or equivalent or consent of department.

4850 Business German (3) Survey of German used in fields of business and economics, intended primarily for students wanting to major or minor in business or economics. Prereq: 3110-20-30.

GENERAL COURSES

3260 German Drama in English Translation (3) From Lessing to present. No foreign language credit.

3270 Modern German Novel in English Translation (3) From 1900 to present. Remarque, Hesse, Mann, Kafka, Frisch, Bolt, Grass. No foreign language credit.

3290 Goethe's Faust in English Translation (3) Intensive study of Faust I and II and survey of criticism and interpretations of the work. No foreign language credit.

3310 Dramas of Bertolt Brecht (3-4) Chronological survey of Brecht's dramatic works and theoretical writings in English translation. No foreign language credit.

3320 Novels of Hermann Hesse (3-4) Study and analysis of Hesse's major novels in English translation. No foreign language credit.

3340 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.) in German, Master of Arts in College Teaching (M.A.C.T.) in German, and Doctor of Philosophy (Ph.D.) in German Language and Literature. The requirements for these degrees as well as course descriptions are in the Graduate Catalog.

Russian (886)

1110-20-30 Elementary Russian (4,4,4) Must be taken in sequence.

1510-20 Russian Elementary (4,4,4) Must be taken in sequence.
art, music, history, geography, and social problems of Russia. No knowledge of Russian required. A writing emphasis course. Fullfills upper level distribution requirement for Foreign Culture.

Greek
See Classics.

Hebrew
See Religious Studies.

History (462)
Professors:
J. H. Morrow, Jr. (Head); Ph.D. Pennsylvania; Ph. H. Bergeron, Ph.D. Vanderbilt; E. V. Chmielowski Ph.D. Harvard; R. E. Duncan, Ph.D. California (Berkeley); L. P. Graf; Ph.D. Harvard; Y. P. Hao; Ph.D. Harvard; A. G. Haas, Ph.D. Chicago; R. W. Haskins (Emeritus); Ph.D. California (Berkeley); C. O. Jackson (Associate Dean, Liberal Arts College); Ph.D. Emory; M. M. Klein; Ph.D. Columbia; R. G. Landen (Dean, Liberal Arts College); Ph.D. Princeton.

Associate Professors:

Assistant Professors:

Instructor:
D. B. Morrow, M.A. Tennessee

1Berwind Distinguished Professor
2 Alumni Distinguished Service Professor
3Lindsay Young Professor.

UNDERGRADUATE
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 thinking in 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.

B.A. 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) 8 hours of History 2015; (2) 20 upper-division hours.

Minor: History 1510-20 (or honors equivalent) is prerequisite to a minor which consists of 24 hours of courses numbered 2000 or above, including at least : (1) 8 hours in United States history; and (2) 12 upper-division hours.

History for Non-Majors: The department welcomes non-majors in its courses. Few history courses have formal prerequisites.

Honors Program: The Department of History offers honors sections of the Western Civilization and United States history survey course. Some entering freshmen are invited to participate; other 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 (3008, 3038, 3048) and a senior thesis (4018-4028). The honors major consists of 50 hours, including 41 hours as outlined above, plus 3008-38-48. All rising juniors who are declared history majors with an overall GPA of 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 from any member of the history department. The department also prepares a course description brochure for each quarter.

American Studies. See Cultural Studies.
Asian Studies. See Cultural Studies.
Latin American Studies. See Cultural Studies.

Russian and East European Studies. See Cultural Studies.

1510-20 Development of Western Civilization (4,4) 1510-20—Ancient World to 1715. 1520—1715 to present. E. 1518-28 Honors: Development of Western Civilization (4,4) Consistent of department required. 1518-F: 1528-W.

1610-20 A History of World Civilization since 1450 (4,4) Interaction of Western World and non-Western peoples since the 15th century. 1610-F: 1520-1580; 1620-1680; 1630-1700; 1715-1789 to present. 1610-F; 1620-W.

1650-60 Afro-American History: An Introduction (4,4) Survey of the Afro-American experience from 1490. Traditional African societies from which Afro-Americans emerged; evolution of prejudice and racism in America; the institution of slavery; free Negroes; Civil War and Reconstruction. 1950-60 Afro-American History: An Introduction (4,4) Interaction of Western World and non-Western peoples since the 15th century. 1610-F: 1520-1580; 1620-1680; 1630-1700; 1715-1789 to present. 1610-F; 1620-W.

2020 The City in Europe, ca. 1200-1900 (3) Survey of European urban growth, with comparative analysis of major periods of urbanization of 13th and 19th centuries. Emphasis on relationship between demographic, economic, and political foundations of cities and political and cultural development.

2015 Historical Issues (3) Introduction to broad, thematic issues in historical perspective. A lecture-discussion course in which the content will change from quarter to quarter. Especially suitable for non-majors: also open to majors. May be repeated. Maximum credit 9 hours.

2350 U.S. and World Crisis, 1899 to Present (4) Presents
international crises confronting the United States today in historical perspective. Emphasis varies to reflect recent developments in world affairs. Intended for non-veterans who have not yet met Tennessee Legislature requirements in American history, or for transfers who enter liberal arts with credits, but fewer than equal to a major. Consent of department; prereq or coreq: 2510 or 2520-1865 to present.

2510-20 History of the United States (4,4) 2510—Settlement of 1865. 2520—1865 to present. E.

2511-21 Readings in United States History (1,1) Directed readings in aspects of national past. Only for students working for honors in history. Admission with consent of department; prereq or coreq: 2510 or 2520-1865 to present. Not to be offered during summer sessions. F, W, S.

2515-25 United States History for International Students (4-5) 2515-Settlement to 1865. 2525—1865 to present. F, W.

2518-28 Honors: History of the United States (4,4) Consent of department required. 2518—F; 2528—W.

3008 Honors: Introduction to Historical Analysis and Interpretation (3) Required of students working for honors in history.

3038 Honors: Philosophy and Methods (3) Principles and techniques of research and study of critical and significant aspects of the United States history. Required of students working for honors in history. Admission with consent of department.

3048 Honors: Readings (3) Required of and open only to students working for honors in history.

3050 The West and the Third World Since 1870 (3) Examination of the relationships between the West and the Third World since 1870 across a broad spectrum of critical issues. Includes economic interdependence and underdevelopment, ideological missionary movements, Western world views, and the search for individual identity in circumstances of cultural disruption.

3051 Revolutions in Historical Perspective (3) Comparative history of major revolutions which transformed political, social, and economic structures and values, such as those in France, Russia, China, Mexico, and Iran. Contrasts and common patterns in their causes, phases, and outcomes. Relations between leaders and masses. Major theories of revolution.

3060-70-80 History of Western Religious Thought and Institutions (3,3,3) (Same as Religious Studies 3060-70-80.)

3121 Ancient History to 500 A.D. (3) The cultural foundations and early stages of western civilization. Considers topics as the rise of the Greek polis, classical Greek culture and philosophy, Alexander the Great and the Hellenistic era, the rise and fall of the Roman Empire, the origins of Judaism and Christianity.

3122 Medieval Europe, 500-1450 (3) The emergence of a distinctive western European civilization from classical, Christian, and Germanic roots. Considers such topics as the barbarian migrations, feudalism, state-making in England and France, the social and spiritual power of the church, the rise of cities, the Black Death and early Renaissance.

3123 Early Modern Europe, 1450-1750 (3) The transition from medieval toward modern society. Considers such topics as the Renaissance, Reformation, religious wars and civil wars, peasant rebellions, the spread of European contacts with the non-European world, population fluctuation, preindustrial economic growth, the rise of modern states, the Scientific Rev-olution, witchcraft.

3124 Modern Europe, 1750,1900 (3) The political, industrial and intellectual revolutions against traditions. Considers such topics as the modern population explosion, urbanization, the political emergence of the middle class and the masses, nationalism, imperialism, rationalism and Romanticism in social thought and politics.

3125 Contemporary Europe, 1900-1990 (3) The transformation from industrial to post-industrial society and the decline of the European nation-state. Considers such topics as war and depression and consequent political and social instability; the Russian Revolution; Nazism, decolonization; the impact of Freud and Einstein; welfare states; European reunification; socialism and democracy.

3140-50-60 History of England (3,3,3) 3140—To 1668. 3150—1688 through Reform Bill of 1832. 3160—1832 to present. Medieval state, church, and society; origins of Anglo-American law, the monarchy and Parliament; 17th century revolutions; commercial, agricultural and industrial revolutions; class conflict, empire, the welfare state, world wars, and Cold War.

3201 American Issues: Individualism and Community (3) Examination of the ways in which Americans have organized their lives so as to retain the benefits of individualism and provide a basis for "Americanism" and ethnic identity.

3202 American Issues: War and the Peaceful Ideal (3) Examination of the evolution of the dual tendency among Americans to express abhorrence of war and imperialism, but at the same time, to engage in war and exercise economic or political dominance over other peoples. Topics include the relationship between wars and wars, patterns of dissent, mobilization for war, and post—war attitudes.

3210 History of Sports in United States (3) Analysis of development of sports and their significance in American life from colonial period to present. Emphasis on social, cultural, economic, and political impact of both spectator and participatory sports in 20th century.

3240 Law in American History (3) The law and economic development, law and slavery, law and civil liberties, the role of law in the Revolution and the Civil War, and the rise and development of the legal profession. Not for graduate credit.

3270 History of Human Rights and Public Health in the United States (3) The movement of individuals in modern society, focusing on how and why public housing, health, and welfare services emerged in industrial America and providing historical background for understanding contemporary social services, professionalization of those services, and values and attitudes of deliverers and recipients of them.

3311-21 History of Tennessee (3,3) 3311-18th century to Civil War Era. 3321—1865 to present.

3411 The Renaissance (3) (Same as Religious Studies 3411.)

3412 The Reformation (3) The Reformation, Counter Reformation, and Wars of Religion. (Same as Religious Studies 3412.)

3421-22 Early Modern Europe (3,3) 3421—17th century Europe. 3422—18th century Europe.

3431-32 Nineteenth Century Europe (3,3) 3431—French and industrial revolution to 1848. The milieu of ferment for conflicting economic, social and political ideas, culminating in a massive revolutionary upheaval. 3432—Maturity and Challenge (1848-1893). Industrial and agricultural revolution; intense national rivalry; triumph of the bourgeoisie, the intellectual climate of realism, scientism, and materialism.

3445-46 History of France (4,4) 3445—Emergence of Modern France (1715-1875). Social, intellectual and economic pressures in the acien regime; era of experimentation as revolutionary and traditional France confront one another. 3446—Since 1871.

3470-80-90 History of Russia (3,3,3) 3470—To 1801. 3480—19th century. 3490—20th century.

3610-20 The American Colonies and the American Revolution (3,3) Emphasis is on major themes rather than chronological coverage of the years 1607-1783. Changing historical interpretations of European colonization; colonial society, economy, religion, culture and politics, the causes, character, and conse-

quences of the American Revolution; and the nature of the Federal Constitution of 1787.


3680 Indian-White Relations in United States History (4) White man's relationship with the Indian since Colonial times, Emphasis on dilemma of two cultures existing side by side; background and formulation of official Indian policy; understanding of policy by frontier circumstances; Indian wars and campaigns; and present-day relationships. Not for graduate credit.

3710-20-30 History of Germany (3,3) 3710—Germany 1500-1700. 3720—Germany 1700-1890. 3730—Germany 1890: The Catastrophic Century. From empire, world wars, Third Reich to defeat and partition, the role of military, the political impact of economic crises, Hitler and Nazism, and the interplay of extremism, socialism and democracy.

3751 Ancient Near Eastern Civilization (3) Bronze and Iron Ages.

3760-70 The Ancient World (3,3) 3760—Greece. 3770—Rome.

3780-90 History of the Middle East (3,3) 3780—Rise and spread of Islamic civilization to the 16th century. 3790—The impact on the West of the Middle East from the 16th century to World War I.


3870-80 History of Latin America (3,3) 3870—Colonialism and Independence, 1500-1825. 3880—National Development and National Issues since 1825 to present. (Same as Latin American Studies 3870-80.)

3911 The United States, 1877-1914 (3) The impact of industrialization, urbanization, overseas expan-sion and Progressive reform programs upon American society. 1877-1914. (Same as United States History 3911.)

3921 The United States, 1914-1945 (4) American experience during World War I, the Great Depres-sion, the New Deal, and World War II. Emphasizes domestic history but includes military and foreign policy.

3931 The United States History, 1945 to the Present (3) Demobilization and Cold War after World War II followed by wars in Korea and Vietnam: attempts to find labor peace, national prosperity, and full equality for African-Americans. From Truman's administration to the present.

3950 African History to 1940 (3) Focuses on the ethnic groups of the southern and western regions of sub-Saharan Africa and Africa in general. An extension of the history from the era of the slave trade through the period of European colonial rule. (Same as Afro-American Studies 3950.)

3951 African History Since 1940 (3) Examines the development of Africa's political state; the achievement
one course from each of the four lists of courses:

1. Psychology 3650 (4)
2. Political Science 3565 (4), Political Science 3566 (4), or Sociology 4565 (4)
3. Psychology 3120 (4) or Sociology 3130.

Total Credit Hours 55-56

2690 Introduction to Human Services (4) General field of human services with focus on related societal values; contemporary issues in human services. E.

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. W, S.

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 point of view. Special emphasis placed on political and economic structures of region. Recommended: Anthropology 4740.

3300 Thinking about People (4) Intended to facilitate development of thoughtful, informed, and empathetic attitudes toward human beings-those providing service as well as those receiving service. F, W.

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. F, S.

4101 Foreign Study (1-16) Foreign Study Application field not later than the first week of the quarter prior to the quarter of enrollment. For additional information, see page 160.

4102 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 160.

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 160.

4220 Human Services Methodologies (4) Introduces students to specific helping techniques essential to human services, including aspects of planning, administration and delivery of human services. F, W.

4221 Human Service Methodologies II (4) A continuation of HS 4220 with emphasis on general helping skills essential to the administration and delivery of human services. Prereq: 4220. W, S.

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 instructor. May be repeated up to 12 credit hours.

4300 Working Within the System (6) A survey of the context within which the need for human services arises and an analysis of the process by means of which such services are provided. Prereq: senior standing.

4400 Human Services Field Work (8) Practical field experiences in appropriately organized and directed human services settings. Designed to offer the student the opportunity to learn and develop specific helping skills and to become exposed to and involved in the roles and functions of social services; to provide some direct services in a supervised learning situation. For majors only. Must be taken for 8 hours Fall and Spring Quarters. S/N/C. Prereq: 4220, 4221. F, S.

4401 Human Services Field Work II (8) Practical field experiences in appropriately organized and directed human services settings. Designed to offer the student the opportunity to learn and develop specific helping skills and to become exposed to and involved in the roles and functions of social services; to provide some direct services in a supervised learning situation. For majors only. Must be taken for 8 hours Winter and Summer Quarters. S/N/C. Prereq: 4220, 4221, 4400. W, SU.

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. Oline, 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. Fransen, Ph.D. Illinois; R. I. Gregory (Emeritus), Ph.D. Illinois; T. G. Hallam, Ph.D. Missouri; D. B. Hinton, Ph.D. Tennessee; A. S. Householder (Emeritus), Ph.D. Chicago; L. S. Hurlb, Ph.D. Florida State; G. B. Jordan, Ph.D. Wisconsin; H. T. Matheus, Ph.D. Tulane; R. M. McCrone, Ph.D. Duke; D. D. Miller (Emeritus), Ph.D. Michigan; B. S. Rajput, Ph.D. Illinois; K. C. Reddy, Ph.D. Indian Institute of Technology; P. W. Schaefer, Ph.D. Maryland; S. M. Serbin, Ph.D. Cornell; K. Soni, Ph.D. Oregon State; W. F. Stallmann, Ph.D. Giessen (Germany); E. Wachspych, Ph.D. Rensselaer Polytechnic Institute; W. R. Wads, Ph.D. California (Riverside); C. G. Wagner, Ph.D. Duke; J. W. Walsh, Ph.D. SUNY (Binghamton).

Associate Professors:
V. Alexiades, Ph.D. Delaware; N. Allakos, Ph.D. Brown; D. F. Anderson, Ph.D. Chicago; V. A. Douglas, Ph.D. Harvard; J. J. Yndyak, Ph.D. Warsaw (Poland); S. I. Harthan, Ph.D. Carnegie-Mellon; K. R. Kimble, Ph.D. Ohio State; Y. Kuo, Ph.D. Cincinnati; B. A. Kuperschmidt, Ph.D. Massachusetts Institute of Technology; W. H. Row, Jr., Ph.D. Wisconsin; R. J. Rowlett, Ph.D. Virginia; J. Smith, Ph.D. California (Berkeley); G. S. Sot, Ph.D. California (Berkeley); R. P. Soni, Ph.D. Oregon State; H. Simpson, Ph.D. California Institute of Technology; K. R. Stephenson, Ph.D. Wisconsin; C. Sundberg, Ph.D. Wisconsin.

Assistant Professors:
I. Bailes, Ph.D. Cornell; L. Barker, Ph.D. Florida State; J. Cohen, Ph.D. Washington; S. Ellner, Ph.D. Cornell; L. J. Gross, Ph.D. Cornell; D. Kansky, Ph.D. Harvard; M. L. Leiber, Ph.D. Kentucky; J. Long, Ph.D. Michigan State; S. Mullay, Ph.D. Purdue; B. K. Soni, Ph.D. Texas.

Instructors:
C. G. Doss, M.A. Tennessee.

*Space Institute, Tutahoma.
UNDERGRADUATE Removal of Entrance Deficiencies: Entrance deficiencies in mathematics can be removed by taking courses in the evening, or by correspondence. Additional fees are required. For details, contact the Evening School or, for correspondence courses, The Center for Extended Learning. The appropriate courses are as follows:

Deficiency

<table>
<thead>
<tr>
<th>Evening Courses</th>
<th>Correspondence Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algebra I</td>
<td>Math 100</td>
</tr>
<tr>
<td>Algebra II</td>
<td>Math 105-20</td>
</tr>
<tr>
<td>Geometry</td>
<td>Math 030-40</td>
</tr>
<tr>
<td>Trigonometry</td>
<td>Math 050</td>
</tr>
</tbody>
</table>

Placement Information for Freshman Courses: In selecting their first mathematics courses, students should bear the following points in mind:

1. Entrance deficiencies must be removed before the student can take the courses carrying college credit. It is acceptable to take 0150 at the same time a 1700 or 1840, but it is preferable to take trigonometry in high school.

2. The department reserves the right to exclude or remove from its courses students who do not meet the prerequisites listed.

3. Fewer than half of the students presenting mathematics ACT scores below 16 are able to complete Math 1540 successfully. Such students should take 0120 (in the Evening School) before attempting 1540. Fewer than half of the students presenting mathematics ACT scores below 22 are able to complete Math 1700 successfully. Such students should complete 1540 before attempting 1700. Fewer than half of the students presenting mathematics ACT scores below 28 are able to complete Math 1840 successfully. Such students should take 0170 before attempting 1840.

4. Due to crowded conditions in most freshman-level courses, it is usually not possible to change courses after the start of the quarter. Therefore, courses should be taken according to the prerequisites listed.

5. Math 1550-60 does not substitute for 1840-50-60 in curricula requiring the latter, nor is 1550 an appropriate preparation for 1840. Students who need to take a course preparatory to 1840 should take 1700 (preceded by 1540 if necessary). Place of Well-Prepared Students: Students in curricula requiring 1540-50-60 should skip 1540 and begin with 1550 if they have a mathematics ACT score of 24 or above and grades of A or B in high school Algebra II.

Students in curricula requiring 1840-50-60 are urged to consider taking the Honors sequence 1848-58-68 if they have mathematics ACT scores of 32 or higher, and a high school average of 3 .0 or above.

Students who took calculus in high school may qualify for advanced placement in the 1840 sequence, and should consult an advisor in the Mathematics Department. Basic Skill Requirement for Liberal Arts Students: Many students are exempt from this requirement; see page 148 of this catalog for a complete description. Either 1140 or 1700 can be taken to satisfy the requirement. Students who plan to take 1840 (or 1841 or 1842), and who must satisfy the requirement, need to take 1700, not 1140. Note that 1540 does not satisfy the requirement. Credit Restrictions: No student who has earned a grade of C or better in any course numbered 1550 or higher may subsequently receive credit for 1140. No student who has earned a grade of C or better in 1850 may subsequently receive credit for 1550 or 1700. No student who had earned a grade of C or better in 1850 may subsequently receive credit for 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, an honors version 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," both in the Timetable and on the student's transcript. Honors courses may be offered upon the initiative of interested faculty members 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 take the Placement Examination Office, Ayres 121, about the possibility of taking a proficiency examination or CLEP 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 3220, 3510, and 3861.

B.S. Major: Before beginning a mathematics major, a B.S. candidate must complete 1840-50-60 (or honors versions) and have programmed to take 3155. The major requirements are:

1. 2840-50-60 (or honors version) and 3155.
2. 3550-60. Students who complete 2848-58-68 may substitute six hours of advanced mathematics courses (as defined above) for this requirement.
4. Fifteen additional hours of advanced mathematics courses as defined above. In satisfying this requirement a student may substitute not more than six hours of courses from the following list, for advanced mathematics courses (as defined above) for this requirement:

- 4500-20-30
- 4710
- Educational Curriculum 3751, 3752
- Physics 3210-20, 4110-20, Statistics 3460
- 4910 and 4920 (These two courses constitute a capstone experience for mathematics majors.)

Honors Program: Mathematics majors who fulfill the preceding requirements may qualify for an honors degree if their program includes at least 27 hours of 4000-level mathematics courses (except 4710), at least 6 hours of which are honors courses (course numbers with final digit is 6). The grade point average, computed on the aforementioned 27 hours, will determine the honors category as follows: G.P.A. at least 3.4—Honors; G.P.A. at least 3.6—High Honors; G.P.A. at least 3.8—Very High Honors.

In exceptional cases, other courses of similar level may replace the six hours of honors courses.

Candidates for an honors degree must apply to the Chair of the Department Honors Committee the quarter before they expect to graduate (in the spring, if graduation is to be in December). Their applications should list the courses required to complete the required 27 hours, including the required honors courses, or proposed substitutes. Students with credit for more than 27 hours of qualifying courses may select 27 hours to be used in computing the G.P.A. which determines the honors category for which they qualify. A note of successful completion of honors program will be entered on the transcript.

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 one of the degree areas, the mathematics faculty has designed a variety of sample programs which majors may wish to follow. Programs are available to prepare students:

- for employment in business or industry, whether in numerical mathematics and computer science, operations research, probability and statistics, business and applied statistics, or actuarial science;
- for graduate work, in pure mathematics, applied mathematics, computer science, operations research, or statistics;
- for teaching, at the school or college level;
- for careers in business, law, medicine, or any other areas 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, Ayres Hall. Prospective students are invited to write for copies.

0150 Trigonometry (0) 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.

1140 Basic Mathematical Skills (4) Sets, elementary deductive logic, problem solving, elementary probability and statistics. Satisfies the Basic Skills Requirement in Mathematics for B.A./B.S. candidates in the College of Liberal Arts. No student who expects the University of Tennessee to have a major in any Mathematics course numbered 1550 or higher, may receive credit for 1140. Association requirements in mathematics must be removed before taking 1140.

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 earned a grade of C or better in either 1550 or 1840 may subsequently receive credit for Math
one year of algebra or one year of geometry.

Note: No student who has received a grade of C or better in Mathematics 1550 may subsequently receive credit for Mathematics 1550.

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 rational functions, applications of the derivatives and definite integrals. Credit will not be given for both 1540 and 1550 or better may subsequently receive credit for Math 1840 with a grade of C or better.

3040-50-60 Single Variable Calculus (4,4) Functions, graphs, slope of a curve, definition of a derivative, limits, derivatives of polynomials, rational functions, trigonometric functions, chain rule, differential quotients, applications of derivatives, maxima and minima. Indefinite integrals and applications, the definite integral, improper integrals, applications, volumes, work calculations. Credit will not be given for both 1540 and 1550 or better may subsequently receive credit for Math 1840 with a grade of C or better.

3810 Mathematical Models in Business Administration. Prereq: 1 year of college mathematics. Does not satisfy the requirements of a major or minor in mathematics.

3990 Studies in Mathematics (1-4) Credit determined at registration. May be repeated for credit with a grade of C or better.

3100 Logic and Sets (3) Elements of mathematical logic; elementary algebra of sets. Primarily for students in the College of Liberal Arts. Prereq: Math 2560 or equivalent. 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 Liberal Arts. Prereq: Math 1560 or equivalent. Does not satisfy the requirements of a major or minor in mathematics.

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 1850 or 2560 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 in the plane and space. Study of isometries and similarities; symmetries of a polygon; inversions. Prereq: One year of college mathematics.

3510 Intermediate Analysis for Teachers (3) Primarily for students in secondary mathematics education. Course covers elementary calculus from an advanced viewpoint with emphasis on the theoretical aspects. Topics covered include limits of sequences and functions, continuous functions, derivatives, definite integrals, and fundamental theorems. Does not satisfy the requirements for a major or minor in mathematics.

3550-60 Intermediate Analysis (3,3) Real number system, functions, sequences, limits, continuity, uniform convergence, differentiability and Riemann integration. Must be taken in sequence. Prereq: 2840-50-60.


3780-90 Introduction to Combinatorial Theory (3,3) Introduction to problems of arrangement and selection within discrete systems. Enumerations by recurrences and generating functions, graph theory, finite geometries and finite fields, partitions, block designs. Prereq: Math 2980 or consent of instructor.

3910 How to Prove It (3) Course is designed to improve understanding of natural and formal methods of mathematical proof by means of practice and participation in seminar setting. Variable content will include certain standard topics such as elementary set theory, relations and functions, and mathematical induction. Coreq: 2850 or 2560.

3861 Mathematical Models in the Life Sciences (3) Introduction to different types of non-linear differential equations. Mathematical modeling techniques applied to biological phenomena. Prereq: Math 1841-51 or consent of instructor. Does not satisfy the requirements of a major or minor in mathematics.

3920-30 Topology of Euclidean Spaces (3,3) Topics will include topology of line and plane, separation properties, compactness, connectedness, completeness, covers, continuous, homeomorphisms, compactness, and topological invariants. Must be taken in sequence. Prereq: 3810 or 2868 or consent of instructor.

3990 Studies in Mathematics (1-4) Credit determined at registration. May be repeated for credit with a grade of C or better.
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, similarity and unitary transformations, singular value decomposition, and the least squares problem, vector and matrix norms. Jordan canonical forms, evolution of discrete and continuous 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. Prereq: 4050-60.

4102 Off-Campus Study (1-16) See page 160.

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.

4150-60 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, instructor's selection of a solution of a single nonlinear equation; introduction to iterative methods for linear and nonlinear systems. Polynomial equations; polynomials and methods for eigenvalues. Approximation by polynomials, piecewise polynomials, trigonometric and rational functions. Prereq: 3150 or 3155. (Same as Computer Science 4225.)

4235 Numerical Methods for Ordinary Differential Equations (3) Interpolation by polynomials and piecewise polynomials, quadrature; singlestep and multistep methods for differential equations. Stability, consistency, and convergence. Current algorithms, variable step and order; stiff systems. Boundary value problems. Prereq: 3150 or 3155 and 4610 or 4225. (Same as Computer Science 4235.)


4250-60 Introduction to Complex Analysis (3,3) Complex numbers, Cauchy-Riemann equations, Cauchy’s theorem, Taylor and Laurent series, residues and their applications. 4250—Conformal mapping, Schwarz-Christoffel transformations, the Dirichlet problem, applications (steady temperatures, electrostatics, fluid flow), additional topics in complex function theory. Must be taken in sequence. Prereq: 2860; one 4000-level mathematics course recommended.

4510-30-30 Introduction to Analysis (3,3,3) Real number system, functions, sequences, limits, continuity, uniform continuity, differentiation, integration, functions of several variables, implicit function theory, multiple integrals, infinite series, sequences and series of functions, uniform convergence, Taylor series. Should be taken concurrently with 4510. NOTE: Credit will not be given for both 4530 and 4710.

4540 Infinite Series and Functions of Several Variables (3) General theory, power series and Taylor’s formula, uniform convergence. Partial differentiation and maxima and minima for functions of several variables. Lagrange multipliers. Prereq: 2860.

4550 Partial Differential Equations (3) Fourier series; Fourier integral; orthogonal functions; the vibrating string; solution by series; heat flow, Bessel functions. Prereq: 2860; 4610 or 4710 recommended.


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; discrete and continuous 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, basic vectors, dot and cross products, directional derivatives, divergence and curl of vector fields, line and surface integral divergence, theorem of Gauss, Stokes theorem, Green’s theorem. Credit will not be given for both 4530 and 4710.

4750-60 Introductory Probability Theory (3,3) 4750—Elementary combinatorial analysis, probabilities in discrete sample spaces, conditional probability and stochastic independence, binomial, Poisson, hypergeometric, and normal distributions. 4760—Expectation, conditional expectation, the characteristic function of random variables, infinite sequences of random variables, the weak and strong laws of large numbers, and the central limit theorem. 4770—Markov chains: limiting probabilities; steady-state and stationary distributions; Stochastic processes: Poisson, birth and death processes; Kolmogorov equations. Prereq: Math 3540-50-60.

4810 Elementary Number Theory (3) Divisibility; congruences; theorems of Fermat and Wilson, primitive roots; indices, quadratic reciprocity. Prereq: 2860 or consent of instructor.

4910 Senior Topics (3) Topics vary. Assignments will include literature research and oral or written reports. May be repeated once for credit. Prereq: 3550-60, senior standing, and consent of instructor.


4980 Readings in Mathematics (1-3) Open to superior students with consent of 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. May be repeated once for credit. Prereq: Consent of member of mathematics profes- sorial staff and consent of department.

GRADUATE

The Department of Mathematics offers four advanced degrees. In order to become a candidate for any one of these the student 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 and course descriptions are given in the Graduate Catalog.

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. Conry, Ph.D. Texas; T. C. Mockie, Ph.D. Maryland; W. S. Riggsby, Ph.D. Yale; B. T. Rouse, Ph.D. Geulph (Canada), B.V.Sc., Bristol (England); J. M. Woodward (Emeritus), Ph.D. Kansas; C. J. Wust, Ph.D. Indiana.

Associate Professors: A. Bemis, Ph.D. Cornell; D. A. Brian, Ph.D., D.V.M. Ph.D. Michigan State; G. S. Seyler, Ph.D. Idaho.

Assistant Professors: R. N. Moore, Ph.D. Texas-Austin; K. M. Sirotkin, Ph.D. Michigan State; G. Stacey, Ph.D. Texas-Austin.

UNDERGRADUATE

B.A. Major: Consists of Biology 3110, 3120, Biochemistry 4110, 4120, Microbiology 3200, 3519, 3700, and 16 hours of upper-division courses in biology of which 4 hours must be labora-
tory courses. Prerequisites to the major are Biology 1210-20-30 and Chemistry 1110-20-30. Corequisites are Chemistry 3211-21-31, 3229-29-39; and Mathematics 1131-11 or 1540-50-60. Students intending to do post-graduate work should take a cal-
culus sequence 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 infec-
tion, and principles of immunity and allergy. 3 hours and 1 lab.

2190 General Microbiology (3) General properties of bacteria, viruses, and fungi including study of pathogen-
esis, immunity, and applied bacteriology. The combination of 2910-2911 or 2910-2919 meets the needs of programs that require a one-quarter course in microbiology. Coreq: 2911 or 2919.

2911 Microbes in Action (1) Discussions, demon-
strations, 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) Labo-
atory exercises designed to accompany 2910. Open only to students in the College of Nursing, prevet-
inary 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 resist-
ance 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.

3700 Biology of Microorganisms (3) Structure and behavior of prokaryotic microorganisms. Physiology and genetics of bacteria. Fundamentals of viral struc-
ture, function, replication, and control. Role of microorganisms in environment. Prereq: Chemis-
ty 1110-20-30, Biology 3120; coreq: 3519, Biology 3110.

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 2250 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: 2919 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.)

4101 Foreign Study (1-16) See page 160. No more than 3 hours may be applied toward a major or minor in microbiology. May be repeated. Maximum credit 16 hours.

4102 Off-Campus Study (1-16) See page 160. No more than 3 hours may be applied toward a major or minor in microbiology. May be repeated. Maximum credit 16 hours.

4103 Independent Study (1-16) See page 160. No more than 3 hours may be applied toward a major or minor in microbiology. May be repeated. Maximum credit 16 hours.

4110 Physiology of Bacteria (3) Modern concepts of bacterial physiology and metabolism including cell structure and function. Prereq: 3700 and 12 hours of organic chemistry.

4119 Bacterial Physiology Laboratory (2) Prereq: 3519; coreq: 4110.

4130 Taxonomy of Bacteria (3) Bacterial classification. Prereq: 3700 and 3519. 3 hours.

4140 Molecular Genetics (3) Transmission and expression of genetic information at the molecular level. Emphasis is on bacterial and viral systems, but unique features of eukaryotic genetic systems are included. Prereq: 3700 or consent of instructor.

4149 Techniques in Microbial Genetics (2) Practical experience in basic techniques in experimentation in microbial genetics. Coreq: 4140.

4150 Microbial Ecology (3) Application of ecological principles to study of microbial communities. Emphasis on the role of microorganisms in natural environments. Prereq: 3700, one year organic chemistry, Biology 3130, or consent of instructor.

4159 Experimental Microbial Ecology (3) Survey of techniques for assessment of microbial forms, functions, activities, and interactions in a variety of habitats. Prereq: 3519; coreq: 4150 or consent of instructor. 1 hour and 2 labs.

4270 Immunology (3) Principles of inflammation and immunity, immunoglobulin structure and theories of formation, complement, hypersensitivities, cell cooperation in immune mechanisms, abnormalities of the immune system. Prereq: Biology 3120. (Same as Zoology 4270.)

4279 Advanced Immunology Laboratory (2) Laboratory exercises designed to accompany 4279. Prereq or coreq: 4279.

4320 Pathogenic Bacteriology (3) Disease producing pathogens including bacteria, rickettsia, and chlamydia. Prereq: 3200.

4329 Pathogenic Bacteriology Laboratory (2) Techniques for isolation, cultivation, and identification of pathogenic bacteria. Prereq: 3200; coreq: 4329.

4330 Medical Mycology (3) Disease causing fungi; cytology, physiology, pathogenesis, and immunity; emphasis on the methodology of isolation and identification. Prereq: 3700.

4339 Medical Mycology Laboratory (2) Prereq: 3519; coreq: 4330.

4420 Molecular Virology (3) Molecular aspects of the replication, assembly, and expression of viruses, with emphasis on bacteriophage. Prereq: 3700.

4430 Medical Virology (3) General virology with emphasis on medical aspects. Prereq: 3200.

4439 Medical Virology Laboratory (2) Laboratory procedures for isolation, handling and culturing of animal viruses. Prereq: 3519; coreq: 4430.

4909 Laboratory Problems in Microbiology (3-6) Involvement in research program of a faculty member through independent study projects. Consent of individual faculty member required. Not more than 3 hours may be used towards a major in microbiology. May be repeated. Maximum credit 12 hrs.

4910 Seminar in Microbiology (1) May not be applied towards a major in microbiology. Prereq: Senior standing or consent of instructor. S/NC.

GRADUATE
Consult the Graduate Catalog for listing of graduate level courses.

Medical Technology (689)
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 152, 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 and use of methods of identification of protozoa and helminth parasites of man.

4021-22 Clinical Chemistry (6,6) Clinical methods 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 radiometric assay, and analysis of blood and other body fluids for enzymes, hormones, and other constituents of clinical interest, utilizing both automated and manual techniques.

4031-32 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 hemoglobin and correlation of laboratory data.


4043 Clinical Serology and Immunology (3) Performance and interpretation of broad range of clinical serological and immunological procedures with emphasis on principles and clinical correlation. Formal lecture series included.

4050 Nuclear Medicine (1) Physical characteristics, detection and use of short half-life radioactive materials. Emphasis placed on in vivo diagnostic medical uses and radiation protection.

4060 Histology (1) Overview of techniques of preparation of tissue for microscopic evaluation and role of histopathology in clinical diagnosis.

4071 Orientation and Basic Techniques (1) Designed to facilitate transfer of students from campus to health community and clinical laboratory. Introduction to medical 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.

4072 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)

Professors: J. J. Meacham (Head), M.M. Northwestern; J. P. Brock, M.M. Alabama; W. J. Carter (Emeritus); D. M. Eastman; H. Sam Huston; F. P. M. Combs, M.A. Missouri; G. F. DeVine, Diploma, Schurz (Chicago); W. J. Dorn, M.A. Columbia; H. W. Freed, Ph.D. North Carolina; A. G. Holford (Emeritus), M.M. Northwestern; C. R. Huber, Ph.D. North Carolina; D. M. Pederson, Ph.D. Iowa; W. J. Starr (Emeritus), M.M. Eastman, D. Van Vactor (Emeritus), M.M. Northwestern.


Instructors: C. F. Leach, M.M. New Mexico.

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 students who desire a comprehensive liberal studies program. Information regarding requirements for the B.M. degree may be found on page 155.

B.A. Degree/Music Requirements: Prerequisites: Hours
Music Theory 1111-21-31 9
Music Est Training 1113-22-33 3
Applied Study (1000 level) 3
Courses toward the major:
Music Theory 2111-21-31 9
Music History 2300-10-20-30-40 15
Applied Study (2000 and above, maximum 2 hrs. per quarter) 9-12
Ensemble 3
Courses selected from Aesthetics of Music 5400; Recital 3000; Independent Study 4110; 4200; Lecture recital 5054 3-6
Electives 0-6
S. Class (required when taking 2 lessons per week) 0
Prerequisites: 0
Total Hours: 60-66

Minor: (a) Concentration in Applied Music—consists of 24 hours in courses in music, number denoted 2000 and above, distributed as follows: Music 2300, 12 hours in applied music and 9 hours in music electives. Prerequisites are Music 1000 or equiva-
lent and three quarters of applied music study at the 1500-1599 levels.

(b) Concentration in Music History and Literature—consists of 24 hours in courses numbered 2000 and above, distributed as follows: 2010 12 hours in Music History and Literature courses and 9 hours in music electives. Prerequisites are Music 1000 or equivalent and three quarters of applied music study at the 1500-1599 levels. The Bachelor of Science in Music Education, designed for preparation for institutional teaching, is administered by the Department of Music Education. See page 98 for requirements.

GENERAL

1000 Fundamentals of Music Theory (3) Theory and practice of basic elements of music.

1010-30 Class Piano (1, 1, 1) For music and music education majors only. Must be taken in sequence. Course may be waived by successful completion of Piano Competency Examination. Waived courses must be substituted with an equivalent number of quarters of study in Music 1580 or above.

1015 Class Voice (1) Development of basic vocal skills. May be repeated for credit.

1025 Class Voice (1) Prereq: Consent of instructor. May be repeated for credit.

1080 Studio Guitar Styles (2) Introductory survey of guitar styles in jazz, rock, country, and blues idioms. Prereq: consent of instructor.

1085-95 Guitar Class (1, 1, 1) Must be taken in sequence. Prereq: Consent of instructor.

1416 Music Performance (3) An individualized course of study combining participation in a University musical ensemble with collateral study of an instrument or voice. One hour of applied study (Music 1500-1599) and ensemble rehearsals as scheduled. (Music 3600-3699). May be repeated once for credit. Requires payment of Applied Music fee. For non-majors only. Prereq: Performing ability on an instrument or voice.

2000 Solo Class (0)

2010 Introduction to Musical Theatre Technology (3) Stage technology unique to lyric stage.


2020 Vocal Techniques in Popular Music (1) Development of performance techniques in Broadway and other contemporary music styles. Prereq: Consent of instructor. May be repeated for credit.

2040-50-60 Class Piano (1, 1, 1) Must be taken in sequence. Music and Music Education students may waive courses by successful completion of piano competency examination, but waived courses must be substituted with an equivalent number of quarters of study in Music 1580 or above.

2055-65-75 Dictation for Singers (2, 2, 2) Sounds by phonic symbols. Opera and art songs used for examples. Performance practice.

2071-81-91 Church Service Playing I (1, 1, 1) Practical skills applicable to the use of the organ in church services, including keyboard harmony, improvisation, hymn playing, and accompanying on the organ. Prereq: 1113; land-10 hours in organ.

2199 Techniques of Sound Recording (3) Theory and applications of tape recording. Topics include room acoustics, microphones, processing, noise reduction, mixing, editing, dubbing, and recorder maintenance.

2810-20-30 Jazz Piano (1, 1, 1) Harmonic language of jazz including chord symbols, formulae for voicing chords, chord progressions, and fundamental melody-playing and improvisation for right hand. Must be taken in sequence. Prereq: 1010-20.

3000 Junior Recital (0)

3012-23-32 Song Literature (2, 2, 2) Study of literature from 1750 to present with emphasis on performance practices. 3001—Classical and Romantic German art song; 3002—French and Russian art songs; 3022—Late German and contemporary songs. Prereq: 2075 and consent of instructor.

3014-24 Woodwind Literature (2, 2) Prereq: Consent of instructor.

3015 Percussion Literature (1) Prereq: Consent of instructor.

3016 String Literature (2) May be repeated. Maximum credit 6 hrs. Prereq: Consent of instructor.

3018 Introduction to Styles in Jazz Drumming (2) Examination of study of major composers and performers who have contributed significantly to creation of principal styles of jazz drumming.

3052-53 Jazz Improvisation (3, 3) Study and application of principles of improvisation, including nomenclature, chord progressions, chord scales, patterns, melodic development, and free form devices. Prereq: 1141.

3044-54 Brass Literature (2, 2) Prereq: Consent of instructor.

3070 Opera Production (1-3) Supervised work on opera productions. May be repeated for credit. Prereq: Consent of instructor.

3071-81-91 Church Service Playing II (1, 1, 1) Continuation of Music 2071-81-91, which is prereq.

3095 Women in Music (3) The history of women in music from the Middle Ages to present as composers, performers, educators and patrons. (Same as Women’s Studies 3395).


4000 Senior Recital (0)

4002 Suzuki Piano Method (2) Study of the psychology, procedures, and literature of the Suzuki piano method. Prereq: Consent of instructor.

4009-19-29 Talent Education Program of S. Suzuki (2, 2, 2) May be repeated. Maximum credit 12 hours. Prereq: Consent of instructor.

4010-20-30 Piano Techniques (1, 1, 1) Problems of piano playing; development of piano technique; style and interpretation; program building. Prereq: Consent of instructor.

4021-22-32 Principles of Vocal Pedagogy (1, 1, 1) Examination and evaluation of concepts and approaches to teaching singing (past and present) and related teaching materials. Collateral laboratory experience accompanies the study. Prereq: Consent of instructor.

4036-37-38 Advanced Piano Literature (2, 2, 2) Piano music from preclassical period to present. Prereq: Consent of instructor.

4041 Styles in Opera Acting (3) Study and practice of styles in opera acting based on historical and national characteristics. Prereq: 3015 or consent of instructor.

4045 Projects in Opera Theatre (1-3) May be repeated for credit. Consent of instructor.

4047 Styles in Musical Theatre (3) Study and practice of styles in musical theatre acting based on historical and contemporary characteristics. Prereq: Consent of instructor.

4050 Advanced Instrumental Conducting (3) Development of knowledge and skills in instrumental conducting; study of different periods and composers and relationship of different styles to the conductor’s art; musical analysis and practice in conducting. Prereq: Music Ed. 4430 or equivalent.

4056-58-57 Elementary and Intermediate Piano Pedagogy (2, 2, 2) Examination and study of piano methods and materials designed for teaching precollege level students. Prereq: Consent of instructor.

4060 Advanced Choral Conducting I (3) Development of refinement of conducting techniques; including chant and changing meters. Prereq: Music Ed. 4510 or equivalent.

4074 Music in Christian Worship (3) History and philosophy of church music; liturgies and liturgical music; music in non-liturgical worship. Prereq: Consent of instructor.

4084 Church Music Methods and Administration (3) Prereq: Consent of instructor.

4085 Harpsichord Techniques (1) Technique, literature, performance practice, continuo playing, and basic tuning and maintenance. Requires a thorough keyboard background. Maximum credit 3 hrs. Prereq: Consent of instructor.

4091 Special Topics in Performance (1-3) Prereq: Consent of department head. May be repeated. Maximum credit 6 hours.

4174 Hymnology (3) A survey of Christian hymns from Biblical times to the present.


4400 Jazz Directing (1) Rehearsal techniques of jazz ensembles: special conducting techniques, repertoire, library systems, programming, and supervised laboratory experience in rehearsing university jazz ensembles. Prereq: Enrollment in applied music with jazz emphasis or consent of instructor.

4480 jazz Directing (1) Methods and materials relating to teaching of jazz and other areas of jazz program. Prereq: Enrollment in applied music with jazz emphasis or consent of instructor.

4480 Advanced Improvisation (2) Emphasis on further development of individual skills and solving individual problems in jazz improvisation. Prereq: Music 3050-53.

MUSIC THEORY AND COMPOSITION

1111-21-31 Theory (3, 3, 3) Materials of music with emphasis on literature of Baroque, Classic, and Romantic periods. Exercises in writing and analysis. Must be taken in sequence.

1113-23-33 Sight-singing and Ear Training (1, 1, 1) Should be taken concurrently with 1111-21-31. Must be taken in sequence. 2 hours per week.

1141 Jazz Theory (2) Fundamentals of the jazz language, including terminology, chord symbols, chord scales, and chord progressions. Prereq: 1111 or consent of instructor.

1199 Fundamentals of Music Composition (3) Melodic invention in simple forms. May be repeated. Maximum credit 4 hours. Prereq: Consent of instructor.

1400 Analysis of Jazz Styles (2) Individual improvisatory styles through analysis of their transcribed solos. Training and function of ear in music. Transcription of solos from recordings and preparation of analyses. Prereq: Music 1141.

2111-21-31 Theory II (3, 3, 3) Materials of music with emphasis on literature of Romantic and contemporary periods. Exercises in writing and analysis. Must be taken in sequence. Prereq: 1131 or 1138 or consent of instructor.

2113-23-33 Advanced Ear Training (1, 1, 1) Should be taken concurrently with 2111-21-31. Must be taken in sequence. 2 hours per week.

3041 Keyboard Harmony (1) Melody harmonization, figured bass realization, and improvisation. Prereq: 1131-33 and keyboard proficiency at the 2000 level.

3092-93-94 Sight Reading at the Piano (1, 1, 1) Prereq: Consent of instructor.

3111 Modal Counterpoint (3) Contrapuntal techniques of 16th century with emphasis on the style of Palestrina. Prereq: 2131.

3112 Instrumentation (3) Basic techniques in scoring for voices; brass, woodwind, and string choirs; and percussion. Prereq: 2131.

3113 Analysis I (3) Study and practice in analysis of
structures of music from smallest structural units to large compound forms. Emphasis on macroanalytic techniques. Prereq: 2131.

3121 Tonal Counterpoint (3) Contrapuntal techniques of 16th century with emphasis on works of J. S. Bach. Prereq: 2131.

3122 Orchestration (3) Advanced techniques in instrumental writing with emphasis on scoring for the concert orchestra. Prereq: 3112 or consent of instructor.

3123 Analysis (3) Continuation of Analysis I with emphasis on micro and linear analytic techniques. Prereq: 3113.

3131 Fugue (3) Contrapuntal techniques of 18th century with emphasis on the fugal works of J. S. Bach. Prereq: 3121.

4100 Independent Study in Music Theory (1-3) May be repeated for credit. Prereq: Consent of department head.

4101 Foreign Study (1-16) See page 160.

4113 Pedagogy of Music Theory (3) Techniques, methods and materials involved in college-level theory programs. Prereq: Consent of instructor.

4117 Choral Arranging (3) Analysis of scores and writing of arrangements for men's, women's and mixed choruses. Prereq: 3112 or consent of instructor.

4124 Marching Band Arranging (3) Study and application of techniques employed in scoring for marching band. Prereq: 3112 or equivalent.

4134 Concert Band Arranging (3) Study and application of techniques employed in scoring for concert band. Prereq: 3112 or equivalent.

4150 Survey of Music Theory (3) Theory of music with emphasis on the development of Baroque, Classic, and Romantic periods. Exercises in writing and analysis. Recommended as review course for graduate students. Prereq: Consent of instructor.

4850 Jazz Composition (2) Prereq: Music 4870-75.

4870-75 Stage Band Arranging (2,3) Analysis of scores and scoring for the stage band. Prereq: 3112 and consent of instructor. Must be taken in sequence.

MUSIC HISTORY AND LITERATURE

1210-20 Orientation in Music Appreciation (3,3) 1210-20 Developing perceptive listening skills through study of materials of music, musical styles, and musical aesthetics. Illustrative examples selected from 4th though the 20th centuries. 1220-20 Introduction to masterworks of music from 1600 to present for non-music majors. Prereq: 1210 or 1220 or consent of instructor.

1230 History of Rock (3) Study and appreciation of rock, its origins in blues and rock and roll, and its relationship with other popular musics-country, gospel, jazz, and folk.

2300 Introduction to Music Literature (3) Acquaintance with basic terms of music and accepted masterworks through chronological approach. For music majors and minors only.

2310-20-30-40 History of Music (3,3,3,3) 2310-40 To 1600. 2300-1600-1800. 2330-1800-1900. 2340-1900 to present. Requires musical background. Prereq: Consent of instructor.

3213 Orientation in Music: Music for the Theatre (3) Study of dramatic music. Prereq: Consent of instructor.

3240 The Symphony (3) Survey of symphonic literature from precursors of classical symphony to present.

3260 Chamber Music (3) Survey of chamber music from 1750 to present.

3271-81 History of Opera (3,3) Dramatic, vocal, and orchestral elements in operas of Italian, French, and German School. 3271-1600-1800. 3281-1800-present.

3340 Oratorio (3) Choral works other than those appropriate for use in church.

3350 Introduction to Afro-American Music (3) History of African music, blues, gospel music, and jazz with emphasis on Black artists and their contributions.


3390 Evolution of Jazz (3) Study of origin, development, and styles of jazz music and its exponents.

4003-04-05 The Organ and its Literature (3,3,3) The development of the organ and organ literature from the Middle Ages to the present; problems of style and interpretation; pedagogical literature and methods, organ design. Prereq and coreq: 2310-30-40-50 and consent of instructor.

4035 Keyboard Literature Before 1750 (2) A survey of music for harpsichord and other keyboard instruments from the Elizabethan period through J.S. Bach.

4200 Independent Study in Music History and Literature (1-3) May be repeated for credit. Prereq: Consent of department head.

4205 Survey of Music History (3) History of music with emphasis on genres, style changes, and cultural forces. Covers the Western European tradition from 400 to 1800. Recommended as a review course for graduate students. Prereq: Consent of instructor.

4241 Music of the United States (3) U.S. music from colonial times to present. Emphasis on 20th century. Includes both folk and art music traditions. Recommended: Music 1210.


4290 Gregorian Chant (3) Chants of Latin rite. Masses and Offices examined as functional music as well as by type.

4340-50 Works of Bach (3,3) Detailed examination of cantatas, motets, Passions, and oratorios. 4340—instrumental works. 4350—vocal works.

APPLIED MUSIC

Applied study is classified as Principal or Secondary.

Students studying their principal (major) instrument register for credit appropriate to their program, 2-4 credit hours; students studying a secondary instrument register for 1 hour of credit. Study at the principal level receives one hour of private instruction per week or a one-hour class lesson plus a half-hour private lesson. Determination of the mode of instruction rests with the department. Study at the secondary level receives one-half hour private instruction per week or its equivalent in class instruction. Applied music courses do not permit non-credit registration nor may students elect non-conventional grading.

Non-music students will be accepted at the secondary level if they meet audition requirements established by area faculty (piano, voice, violin, etc.) and instruction time is available.

Undergraduate students seeking entrance to applied music courses must be concurrently registered for no less than six credit hours in academic courses. Graduate students must be concurrently registered for no less than six credit hours in academic courses. Exceptions to these requirements may be made with the approval of the department head if applied music registration is necessary to completion of degree requirements.

Advanced in applied music is measured by proficiency (Jury) examination. Students who do not meet proficiency requirements at any level may be required additional study at that level. Course level and credit hours will be determined by the applied faculty.

All students studying applied music at the principal level are required to register for Music 2000 Solo Class. The requirements for this course are to attend scheduled concerts, recitals, master, repertoire, and solo classes, and to perform at least once each quarter as partial fulfillment of applied music credit requirements.

Applied Music Fees: $30 per quarter for half-hour lesson (1 credit hour) $60 per quarter for hour lesson (2-4 credit hours)

Computer registration and applied music fee payment must be verified in the Department of Music office no later than the end of the second day of classes of the fall, winter, and spring quarters and the first day of the summer terms in order to be accepted for applied music study.

Applied music fees are not refundable after lessons have been scheduled.

1500-2500-3500-4500-5500 Flute (1-4) May be repeated for credit.

1505-2505-3505-4505-5505 Oboe (1-4) May be repeated for credit.

1510-2510-3510-4510-5510 Bassoon (1-4) May be repeated for credit.

1515-2515-3515-4515-5515 Clarinet (1-4) May be repeated for credit.

1520-2520-3520-4520-5520 Saxophone (1-4) May be repeated for credit.

1525-2525-3525-4525-5525 Horn (1-4) May be repeated for credit.

1530-2530-3530-4530-5530 Trumpet (1-4) May be repeated for credit.

1535-2535-3535-4535-5535 Trombone (1-4) May be repeated for credit.

1540-2540-3540-4540-5540 Baritone (1-4) May be repeated for credit.

1545-2545-3545-4545-5545 Tuba (1-4) May be repeated for credit.

1550-2550-3550-4550-5550 Percussion (1-4) May be repeated for credit.

1555-2555-3555-4555-5555 Voice (1-4) May be repeated for credit.

1550-2550-3550-4550-5560 Violin (1-4) May be repeated for credit.

1555-2555-3555-4555-5565 Viola (1-4) May be repeated for credit.

1570-2570-3570-4570-5570 Cello (1-4) May be repeated for credit.

1575-2575-3575-4575-5575 String Bass (1-4) May be repeated for credit.

1577-2577-3577-4577 Electric Bass (1-4) May be repeated for credit.

1590-2590-3590-4590-5690 Piano (1-4) May be repeated for credit.

1555-2555-3555-4555-5585 Harpsichord (1-4) May be repeated for credit.
3656-5658 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.

GRADUATE

The Department of Music offers the Master of Music degree in performance, composition, music theory, choral conducting, instrumental conducting, string pedagogy, and the Master of Arts degree in musicology and music theory. See the Graduate Catalog for admission and degree requirements, and for graduate course listings.

Organizational Psychology Program

See Graduate School.

Philosophy (745)


Associate Professors: J. O. Bennett, Ph.D. Tulane; S. M. Cohen, Ph.D. Northwestern; K. A. Emmett, Ph.D. Ohio State; J. E. Nolt, Ph.D. Ohio State; M. L. Osborne, Ph.D. Tennessee

Assistant Professors: H. P. Hamlin, Ph.D. Georgia; E. R. Jones III, Ph.D. Chicago; M. Lavin, Ph.D. Stanford.

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 for those students preparing for careers as writers (whether journalistic or literary), lawyers, ministers, or teachers, or for positions in various types of political and government service or for non-technical positions in business or industry.

A major in philosophy imples 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

B.A. Major: Majors' programs must include: 1. at least one prerequisite course in logic, normally 1710 or 1810; 2. at least one course in ethical theory, either 2310 or 4510; 3. at least three courses in the history of philosophy, including at least one course in ancient philosophy, normally 3111, and at least one course in modern philosophy, normally 3131. Majors' programs must include 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)

1511 The Human Condition: Value and Reality (4)

The meaning of life, the existence of God, freedom of the will, human nature and value.

1520 Introduction to Philosophy: Consciousness and Reality (4) May be taken before 1519. E.

1521 The Human Condition: Consciousness and Reality (4) The place of mind in a material universe and the nature and possibilities of human knowledge. May be taken before 1511.

1600 Topics in Philosophy (4) May be repeated once for credit.

1611 Foundations of Western Thought: Antiquity through 1500 (4) Plato, Late Antiquity and the Medieval period.

1621 Foundations of Western Thought: 1500 through Early Twentieth Century (4) Development of Rationalist and Empiricist thought, Nineteenth Century and early Twentieth Century philosophy. May be taken before 1611.

1710 Informal Reasoning (4) Arguments, informal fallacies, uses of language, definitions.

1810 Introduction to Symbolic Logic (4) Formal deductive reasoning: propositions, arguments in natural language, symbolization, truth and validity, propositional logic, predicate logic.

2310 Elementary Ethics (4) Theories of ethical values.

2410 Art and Experiences (4) Introduction to various understandings of art.

2510 Elementary Logic (4) Introduction to deductive logic, including truth tables and elementary formal proofs.

2520 Elementary Logic (4) Inductive reasoning, elements of scientific method, and statistical inference.

3000 Special Topics (4) May be repeated for credit one time.

3100 Socrates (4) An attempt to delineate the philosophical tenets of the historical Socrates on the basis of the views of the character Socrates depicted in Plato’s dialogues, in Xenophon’s Socratic works, and in Aristotle’s ‘The Clouds.

3111 Ancient Western Philosophy (4) E.

3121 Medieval Philosophy (4)

3131 Seventeenth- and Eighteenth-Century Philosophy (4)

3141 Nineteenth-Century Philosophy (4)

3151 Contemporary Philosophy (4) Survey of recent movements in philosophy.

3270 Russian Philosophical and Theological Thought (4) (Same as Russian 3270 and Religious Studies 3270.)

3311-12 American Philosophy (4,4) 3311—Colonial to late 19th century; 3312—Late 19th century to present.

3320 Philosophy of Law (4) Nature, sources, function of law.
3330 Philosophy of History (4) Speculative and critical aspects of philosophy of history.

3410 Philosophical Ideas in Literature (4) Philosophical assumptions and implications in major literary works.

3420 Philosophy of Literature (4) Study of the nature, functions, value, and epistemic principles of literary arts.

3430 The Concept of Woman (4) An inquiry into the nature of woman as it has been conceived by major western philosophers from Plato to Simone de Beauvoir. (Same as Women's Studies 3430.)

3435 Philosophy of Feminism (4) An examination of various feminist theories and their application to social issues of concern to women today. (Same as Women's Studies 3435.)


3510 Existentialism (4)

3550 Marxism as Philosophy (4)

3570 Philosophical Foundations of Democratic Society (4) Philosophical problems relating to nature and justification of the central values, principles, and concepts of democratic society.

3590 Business Ethics (4) Ethical problems as they confront both business as a social institution and individuals in business.

3605-06 Professional Responsibility (4, 4) 3605—Critical analysis of selected classic texts from philosophy, religious studies, and social sciences dealing with the nature of responsibility, the nature of professionalism, and the application of concepts of responsibility to professional activity. Illustrations will be drawn from a variety of professional fields of practice. 3606—Application of the theoretical principles an analytic skills developed in 3605 to selected case studies and other detailed descriptions of professional practice from the following professional fields: Engineering/Architecture; Business/Accounting; and at least one of (a) Law/Politics (b) Helping Professions (c) Human Services, Religious Ministry; (c) Teaching. (Same as Religious Studies 3605-06.)

3611 Medical Ethics (4) Explores ethical issues in medicine such as abortion, euthanasia, human experimentation, fairness in health care delivery and the doctor-patient relationship. (Same as Religious Studies 3611.)

3650 Philosophy and Religion in India (4) (Same as Religious Studies 3650.)

3660 Buddhist Philosophy and Religion (4) (Same as Religious Studies 3660.)

3671 Religion and Philosophy in China (4) (Same as Religious Studies 3671.)

3690 Philosophy of Religion (4) Analysis of basic issues of religion. (Same as Religious Studies 3690.)


3740-50 Conceptual History of Science (4, 4) 3740—The Scientific Revolution: historical evolution of thought in astronomy, mechanics, and philosophy of nature up to Newton. 3750—The development and decline of Newtonian science: historical evolution of thought on the nature of matter and of light, and on that of life. Prereq: 8 hours of physical science or consent of instructor.

3770 Introduction to Philosophy of Science (4) Standard topics in philosophy of science: scientific method, natural laws and theories, problem of induction, explanation, measurement. No background in logic is presupposed.

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- or instructor-initiated course 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 160.

4012 Off-Campus Study (1-16) See page 160.

4013 Independent Study (1-16) See page 160.

4111-21 Modern Religious Philosophies (4, 4) (Same as Religious Studies 4111-21.)

4200 Classical Indian Systems of Philosophy: The Moksha Tradition (4) (Same as Religious Studies 4200.)

4210 Intermediate Ethics (4) Topics in meta-ethics or ethics.

4370 Theoretical Issues in Medical Ethics (4) 4370—Prereq: 3210 or 3611 or consent of instructor. (Same as Religious Studies 4370.)

4410 Plato (4) Prereq: 8 hours of philosophy or consent of instructor.

4420 Aristotle (4) Prereq: 8 hours of philosophy or consent of instructor.

4450 Continental Rationalism (4) Prereq: 8 hours of philosophy or consent of instructor.

4460 British Empiricism (4) Prereq: 8 hours of philosophy or consent of instructor.

4470 Kant (4) Prereq: 8 hours of philosophy or consent of instructor.

4480 Advanced Topics in Existentialism and Phenomenology (4) Prereq: 8 hours of philosophy or consent of instructor.

4511 Advanced Topics in Logic (4) Prereq: Consent of instructor. May be repeated for credit.

4620 Philosophy of Mind (4) Prereq: Consent of instructor. Prereq: 8 hours of philosophy or consent of instructor.

4630 Philosophy of Language (4) Prereq: 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. Prereq: 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. Prereq: 3770 or two years of social science.

4810 Metaphysics (4) Prereq: 8 hours of philosophy or consent of instructor.

4910 Contemporary Aesthetics (4) Philosophical discussion of contemporary art.

Physical Sciences

Major: None offered.

Minor: Consists of the following courses: Physics 2210-20-30, Chemistry 2140-49, 3211-21-31, 3219-28-39, and six hours chosen from Biochemistry 4210-20-30, Chemistry 3410-20-30, Physics 4210-20-30, 3610-20-30. Prerequisites to this minor are Mathematics 1840-50, 4910-20-30. 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.
Undergraduate B.S. Major: The B.S. major in physics is designed to give the student a broad background in the fundamental principles of classical and modern physics and in the applications of these principles to the physical world. It is also preparation for graduate study in the research fields of modern physics. Three electives numbered 3000 and above. Substitution permitted by the minor. Only one of three sequences Astronomy 1510-20-30, 1610-20-30, 2118-28-38 may be taken for credit.

Physics 773

Physics (773) Undergraduate

Introduction to Astronomy and Astrophysics. Concepts of physics are developed by observation and experimentation. Stellar evolution is treated as a chain of events. Characteristics of galaxies and evolution of the universe are examined. Principles by which one interprets astronomical observations are reinforced by lab experience. Must be taken in sequence. 3 hrs. lecture, 2 hrs. lab. Only one of three sequences Astronomy 1510-20-30, 1610-20-30, 2118-28-38 may be taken for credit.

Physics 1220

Electricity and Magnetism, Wave Phenomena

1220-20-30 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.

Physics 1288

Honors: Introductory Astronomy (4,4,4) Introduction to astronomy and astrophysics. Concepts of physics are developed by observation and experimentation. Evolution and properties of stars are studied. Galactic structure is examined and models of our universe are discussed. Observational technique and interpretation of underlying laws of physics are emphasized in accompanying lab. 3 hrs. lecture, 2 hrs. lab. Coreq: Math 1840 or 1550 or equivalent. Only one of three sequences Astronomy 1510-20-30, 1610-20-30, 2118-28-38 may be taken for credit.

Physics 2210

Introduction to Physics (4,4,4) Principles of physics, particularly mechanics and heat, are introduced. Discussion of these ideas will emphasize their role in physical activities, particularly sports-related. Course topics include statics, equilibrium, linear and angular motion, momentum, force, work, and energy. 4 hours lecture and 3 hours lab.

Physics 2210-20-30 Elements of Physics (4,4,4) Mechanics, properties of fluids, heat. 2220—Electricity and magnetism, sound waves. 2230—Optics, atomic and nuclear physics, radiation protection. Basic physical principles and applications required in pre-medical, pre-dental, pre-pharmacy, and pre-veterinary programs. Must be taken in sequence. Coreq: Math 1550 or 1840, or equivalent. 4 hours lecture and 3 hours lab.

Physics 2310

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.

Physics 2410

4100-28-38 Honors: Intermediate Astronomical Observatory (4,4,4) 4100-28-38 Honors: Intermediate Astronomical Observatory (4,4,4) Principles of physics and machinery, principles of interplanetary exploration. Stellar evolution is treated as a chain of events. Characteristics of galaxies and evolution of the universe are examined. Principles by which one interprets astronomical observations are reinforced by lab experience. Must be taken in sequence. 3 hrs. lecture, 2 hrs. lab. Only one of three sequences Astronomy 1510-20-30, 1610-20-30, 2118-28-38 may be taken for credit.

Physics 4150

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 sports-related. Course topics include statics, equilibrium, linear and angular motion, momentum, force, work, and energy. 4 hours lecture and 3 hours lab.

Physics 4110

Physics of Animals (4) Principles of physics, particularly mechanics and heat, are introduced. Discussion of these ideas will emphasize their role in physical activities, particularly sports-related. Course topics include statics, equilibrium, linear and angular motion, momentum, force, work, and energy. 4 hours lecture and 3 hours lab.

Physics 4120

Fundamentals of Physics: Electricity, Waves and Optics, Modern Physics (3,3,3) Required for all engineering students. 2310—Electricity, 2320—Waves and Optics, 2330—Modern Physics. Must be taken in sequence. Coreq: Math 1550 or 1840, or equivalent. 4 hours lecture and 3 hours lab. Only one of three sequences Astronomy 1510-20-30, 1610-20-30, or Physics 2150; coreq: Math 2840-50. 3 hrs. lecture, 2 hrs. laboratory and recitation per week.

Physics 4128


Physics 4115

Mechanics (5) Statics, kinematics, Newton’s laws, momentum, energy, rotational. 4 hours of lecture-recitation, 3 hours of laboratory-problem sessions. Coreq: Math 1840-50-60 or equivalent. 2510 satisfies the prerequisite for Physics 2310-20, 2320, 2330, and 2410. However physics major should also take Physics 1330 as a prereq to the major.

Physics 4230

Heat and Thermodynamics (3) Concepts of temperature and heat; laws of thermodynamics; applications of laws to simple physical and chemical problems. 2310-20 or 2330 and calculus; 3110-20 or instructor’s consent.

Physics 4290

Electricity and Magnetism (3,3,3) 3310—Electrostatics in vacuum and material media. 3320—Distribution fields, coupled fields. 3710—Maxwell’s equations, electromagnetic waves. Must be taken in sequence. Coreq: 2320 and Math 2860.

Physics 4310


Physics 4320

Electronics (3,3,3) Electronic components and circuits of interest to physicists. 2310-20-30 or 2219-28-30 and calculus. 3 labs.

Physics 4330

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: 3610-20.

Physics 4340

Introduction to Atomic and Nuclear Physics (3,3,3) 3710—Special relativity and early quantum theory; 3720—Atomic and molecular physics; 3730—Nuclear physics; 3738—Nuclear Physics and Applications. Coreq: Math 2310-20-30 or 2320 for 3710, 3738 or 3710 for 3720-30.

Physics 4390

Junior Seminar (1-3) Topic of current interest. May be repeated for credit with consent of department.

Physics 4400

Background of Physics (3) Survey of historical development and philosophical foundations of natural science. Classical theories of gravitation, electromagnetism, and relativity. Unifying mathematical principles underlying physical applications. Assignments will include readings from original papers, thought-provoking problems and order-of-magnitude calculations combining different fields of classical physics, and written report on some independent study. Prereq: Senior standing in physics.

Physics 4500

Forefront of Physics (3) Survey of modern developments in physics, including various forms of quantum mechanics, quantum electrodynamics, and recent theories of particles, fields and their interactions. Discussions of unsolved questions in physics, experiments of current interest, readings in recent literature, and applications in other fields, with final oral report and term paper. Prereq: 4010.

Physics 4050

Foundations of Physics (3) Selected topics from history and philosophy of classical and modern physics. 4100-20 may subsequence receive credit. Instructor. NOTE: No student who has received a grade of C or better in Physics 4010-20 may subsequently receive credit for this course.

Physics 4110


Physics 4120

Elementary Nuclear Physics (2) General properties of nuclear, two-nucleon systems, nuclear forces, nuclear models, nuclear reactions, nuclear disintegration and beta-decay, nuclear spin and magnetism. Prereq: 3730 or 4120.

Physics 4160

Physical Acoustics (4) Considerations fundamental to the study of vibration of any branch of acoustics; propagation of acoustic waves in the infrasonic, the audible, the ultrasonic, and the hypersonic regimes; sound frequencies. 3 hours and 1 lab. Prereq: 3110-20, 3230.

Physics 4230

Modern Optics (4,4) 4230-Geometrical optics: reflection and transmission of light at a dielectric interface; paraxial theory of interfaces, lenses, and mirrors; interference and linear, non-linear, and Kerr optics; laser light. 4240—Physical optics: mathe-
matics of wave motion, superposition of waves; interfer- ence phenomena; Fresnel diffraction; Fourier optics; holography. Prereq: 3310 or consent of instruc- tor. 3 hours of lecture and 3 hours of lab.

4510-20-30 Atomic Physics Laboratory (3,3,3)
Experiments in fundamental particle properties, pho- toelectric effect, conduction of electricity through gases, atomic and molecular spectroscopy, X-ray. Prereq or coreq: 3710-20-30. 3 labs.

4540-50 Experimental Nuclear and Radiation Phys- ics (4,4) Interaction of charged particles and electromagnetic radiation with matter; theory and character- istics of various detectors; statistics of counting, nuclear properties. Experiments illustrate recent tech- niques for investigating the nucleus and nuclear radiation. 1 hours of lecture, 6 hours of lab. Prereq: 2330.

4580 Principles of Non-Destructive Testing (3) De- tection and characterization of discontinuities in materials by non-destructive physical measurements. Ultrason- ic, electromagnetic, holographic, and penetrating radiation techniques. Prereq: 2310-20-30 or consent of instructor. (Same as Engineering Science and Mechanics 4560.)

4590 Magnetic Induction Phenomena (3) Theory and application of magnetic induction phenomena. Includes non-destructive testing with eddy currents, induction heating, magnetic levitation, forming, pumping, and flow measurement. Includes lab. Prereq: 3230 or equiv- alent.

460 Kinetic Theory (3) Emphasis is placed on transport properties. Includes discussion of scattering theory and the classical distribution functions. Prereq: 3230 or equiv.

4650 Statistical Mechanics (3) Elementary methods of statistical mechanics are applied to model sys- tems to derive the thermodynamic relations. Classical and quantum distribution functions are discussed. It is recommended that 4640 and 4650 be taken in sequence. Prereq: 3230.

4660-70 Solid State Physics (3,3) 4660—Symmetry and crystal structure, lattice dynamic specific heat, electron band theory, transport properties, optical properties. Must be taken in sequence. Prereq: 3230 or equiv.

4710-20-30 Introduction to Health Physics (3,3,3) Radiocactivity, interaction of electromagnetic radia- tion 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, environmental protection, radiation biology, and ecology. Prereq: 3730.

4818-28-38-48-58-68-78-88-98 Honors: Research and Independent Study (1 hour each) Designed for excel- lent undergraduate majors. Provides opportunity for research and independent study with faculty guid- ance. Special consent of department required. Maximum credit 3 hours.

4890 Senior Seminar (1-3) Topic of current interest. May be repeated for credit with consent of depart- ment.

GRADUATE

General requirements for the master’s degree and doctoral program as well as course descriptions are found in the Graduate Catalog.

Political Science (801)

Professors:

Associate Professors:
R. B. Cunningham, Ph.D. Indiana; J. W. Dodd, Ph.D. Tulane; G. C. Evans, Ph.D. Columbia; M. R. Fitzgerald, Ph.D. Oklahoma; P. K. Freeman, Ph.D. Wisconsin; R. C. Gorman, Ph.D. New York; R. L. Peterson, Ph.D. Yale; T. M. Simon, Ill, Ph.D. Johns Hopkins.

Assistant Professors:

*Alumni Distinguished Service Professor.

BUREAU OF PUBLIC ADMINISTRATION

Professor:
T. D. Unger (Director), Ph.D. Iowa.

Associate Professors:
M. R. Fitzgerald, Ph.D. Oklahoma; P. K. Freeman, Ph.D. Wisconsin.

Assistant Professor:
D. F. Olshefski, Ph.D. Temple.

Research Associate:
S. Rechichar, M.P.A. Tennessee.

UNDERGRADUATE

A B.A. major consists of 40 hours that must be distributed as follows:

1. Eight hours at the 2000 level in political science.

2. Thirty-two hours in political science courses numbered 3000 and above. These 32 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.

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 divisional distribution credit but included on the Social Science list.

2. Sixteen hours in political science courses numbered at 3000 and above. Upper-division courses on the distribution list may be included.

Honors in Political Science: The Honors concentration encourages highly motivated students to obtain a superior liberal educa- tion and more rigorous preparation in the discipline. Admission is selective. The Honors concentration is usually a two-year program and consists of 58 hours, including:

1. Eight hours at the 2000 level in political science.

2. Forty-eight additional hours in political science courses including:

(a) Political Science 3918-28-38 (b) Political Science 4918-28-38 (c) 24 additional hours num- bered 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.

To graduate with Honors in Political Sci- ence, the student must have a GPA of at least 3.3 in Political Science, and a cumulative GPA of at least 3.0.

Public Administration. See page 79 and page 159.


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) Foundations: The Constitution, federalism, sep- aration of powers, campaigns and elections, parties, interest groups, the media, public opinion. 2520— Institutions: executive, legislative, judiciary, and bureaucra- ticy at national, state, and local levels.

2518-28 Honors: United States Government and Politics (4,4) Honors course designed for students of superi- or ability and interest. Entrance into 2518 requires a B average; selected entering freshmen will be accept- ed 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

3110 Political Community (4) The course examines a variety of value systems and social and political structures related to political community.

3130 Popular Culture and American Politics (4) Pop- ular culture as it relates to American politics and government focusing on the role of film, television, fiction, music, drama, art and sports.

3415 Law in American Society (4) Law as a process through which social problems are addressed in the United States. Examples are drawn from case law, legislation, and administrative regulation.

3545 United States Constitutional Laws: Sources of Power and Restraint (4) Analysis of judicial review, constitutional powers of President and Congress, fed- eralism, sources of regulatory authority, and constitutional protection of political rights. 2510-20 desirable as preceding courses.

3546 U.S. Constitutional Law: Civil Rights and Liber- ties (4) Emphasis on judicial interpretation of 1st Amendment, the equal protection clause of the 14th amendment and the right of privacy.

3547 U.S. Constitutional Law: The Criminal Process (4) The rights of the accused, convicted and incor- rectly convicted; search and seizure, right to counsel, self- incrimination, trial by jury, right to appeal, prisoners' rights, etc.

3555 Minority Group Politics in the United States (4) Content varies from quarter to quarter. May be repeat- ed up to a maximum credit of 8 hours with consent of department. (Same as Afro-American Studies 3555.)

3566 Introduction to Public Administration Organi- zation and Management (4) Organization and decision- making theory, line and staff, service, political organization, leadership, personnel and fiscal management, administrative responsibility. 2510-20 desirable as preceding courses.

3820 States by States (4) Emphasis on judicial interpretation of 5th Amendment, the equal protection clause and the right of privacy.

3847 U.S. Constitutional Law: The Criminal Process (4) The rights of the accused, convicted and incor- rectly convicted; search and seizure, right to counsel, self- incrimination, trial by jury, right to appeal, prisoners' rights, etc.

3555 Minority Group Politics in the United States (4) Content varies from quarter to quarter. May be repeat- ed up to a maximum credit of 8 hours with consent of department. (Same as Afro-American Studies 3555.)

3566 Introduction to Public Administration Organi- zation and Management (4) Organization and decision- making theory, line and staff, service, political organization, leadership, personnel and fiscal management, administrative responsibility. 2510-20 desirable as preceding courses.

3970 State Politics (4) Focus on formal and informal setting of state government. State government's role in formulating, enacting, and implementing state policy.

3970 State Government and Policy Making (4) Nature
and functions of the institutions of state government. State government’s role in formulating, enacting, and implementing state policy.

3750 The Urban Policy (4) Analysis of political institutions and processes in metropolitan areas. (Same as Urban Studies 3750.)

3760 Urban Policy Process (4) Analysis of urban problems and policies in metropolitan areas.

3800 American Political Thought (4) Examination of role of selected political ideas, doctrines, and themes in America, emphasizing their development and relationships to diverse political interests.

4110 Law and the Administrative Process (4) Power of, procedures of, controls over administrators.

4335-36 Political Attitudes, Opinions, and Communication (4,4) Nature, development, formation, and distribution of politically relevant attitudes and opinions; role of leadership, persuasion, and communication in opinion-policy process.


4545 The Judicial Process (4) The study of courts as components of political systems, and public policy formulation through judicial decision making. 2510-20 desirable as preceding courses.

4550 Congress (4) Nature, functions, and processes of the U.S. Congress.

4575 Special Topics in United States Government and Politics (4) May be repeated to a maximum credit of 8 hours with consent of department.

4610 Budgetary Process (4) Fiscal planning, budget and expenditure processes in government, their policy and administrative implications.

4620 Public Personnel Administration (4) Development-of the merit system in government, career systems, public personnel management functions, organization for personnel management.

4740 Political Parties and Elections (4) Analysis of party systems and electoral process.

4750 Political Campaigns (4) Coverage includes all aspects of campaign process.

Comparative Government and Politics

3390 Contemporary Issues in American Public Policy (4) Examination of selected public policy issues confronting the nation, including the background, nature, and effects of present policies, and options for the future.

3605 Political Change in Developing Areas (4) Characteristics and problems of political changes with primary focus on developing areas.

3615-18 Dynamics of Black African Politics (4,4) (Same as Afro-American Studies 3615-16.)

3821 Government and Politics of the People’s Republic of China (4) Examination of the Chinese political setting, political structures, participation and selected policy areas.

3825-26 Latin American Government and Politics (4,4) (Same as Latin American Studies 3825-26.)

3831-32 Government and Politics of the Soviet Union (4,4)

3855 Politics in Western Democratic States (4,4) Political culture, patterns, and institutions of Western democratic systems.

3841 Government and Politics of Middle East and North Africa (4)

3750 Contemporary Middle East (4) (Same as History 3795.)

4080 Revolution (4) Examination of characteristics, theories, and consequences of revolution, with particular focus on left-wing revolutions and movements.

4665-56 Policy Making in Democracies (4,4) Comparative approach to theory and process of making public policies.

4875 Special Topics in Comparative Government and Politics (4) May be repeated for a maximum credit of 8 hours with consent of department.

International Relations

3701-02 Introduction to International Relations (4,4) Analysis of major conflicts; problems of peace and security. 3702- Impact of population, resources and economic problems on international politics. International law and organizations particularly the U.N.

3712-22 U.S. Foreign Policy Process (4,4) Processes whereby U.S. foreign policies are made and implemented, focusing on interaction within federal bureaucracy and roles of the President, Congress, the press, and public opinion.

3790 Contemporary Diplomatic and Military Problems (4) Analysis of current international events.

3796 Contemporary Problems of Soviet Foreign Policy (4)

4711 International Law (4)

4727 Politics of Inter-American Relations (4) Analysis of selected theoretical and policy issues concerning relations in the Americas with emphasis on U.S. policies and the Cuban Revolution.

Political Theory and Methodology

3900 Introduction to Political Analysis (4) Introduction to nature, character, and functions of research design, data collection, and statistical techniques used in study of politics.

3801 Studies in Ancient Political Thought (4) Classical Greek and Roman political thought.

3802 Studies in Medieval Political Thought (4) From Augustine to Luther: Emphasis on problems and theories of religion and politics.

3803 Studies in Early Modern Political Thought (4) Machiavelli through the Enlightenment.

3804 Studies in 19th- and 20th-Century Political Thought (4) Political theories of industrial and technological societies; 19th and 20th century.

4831-32 The Systematic Study of Politics (4,4) Scope, methods, and procedures of analysis in political science; intended primarily for seniors intending to pursue graduate work and entering graduate students who have not had such a course.

Other

3918-28-38 Junior Honors Seminar (4,4,4) Required of honors majors; admission with consent of Department.

4101 Foreign Study (1-16) See page 160.

4102 Off-Campus Study (1-16) See page 160.

4103 Independent Study (1-16) See page 160.

4198-28-38 Senior Honors Thesis and Seminar (0-12) Required of honors majors; admission with consent of Department. Maximum credit 12 hours.

GRADUATE

General requirements for the master’s degree and doctoral degree as well as course descriptions are found in the Graduate Catalog.

Psychology (530)

Professors:
W. H. Calhoun (Head), Ph.D. California (Berkeley); G. M. Burghardt, Ph.D. Chicago; A. G. Burstein, Ph.D. Chicago; J. F. Byrne, Ph.D. Pennsylvania; C. P. Cohen, Ph.D. Kansas; E. E. Cureton (Emeritus), Ph.D. Columbia; E. F. C. Fitch, Ph.D. Michigan; J. Handel, Ph.D. Johns Hopkins; L. Handler, Ph.D. Michigan State; R. P. Lonon, Ph.D. Rochester; J. F. McIntyre, Ph.D. California (San Diego); Ph.D. Duke, E. O. Milton (Emeritus), Ph.D. Michigan; K. R. Nieswandt, Ph.D. Texas; H. R. Pollitt, Ph.D. Michigan; N. L. Rasch, Ph.D. Pennsylvania; F. Samejima, Ph.D. Keio (Japan); R. R. Shadrer, Ph.D. D. Verplanken (Emeritus), Ph.D. Michigan; D. Brown; R. G. Wahler, Ph.D. Washington; J. A. Wiberly, Ph.D. Syracuse.

Associate Professors:
J. M. Bartow, Ph.D. Tennessee; N. W. Dye, Ph.D. Tennessee; E. A. Elliott, M.S. Tennessee; D. S. Freeman, Ph.D. Tennessee; M. G. Johnson, Ph.D. Johns Hopkins; J. Kandliski, Ph.D. Tennessee; J. E. Lawler, Ph.D. North Carolina; K. A. Lawler, Ph.D. North Carolina; S. Loucks, Ph.D. Tennessee; 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. Sautargas, Ph.D. Florida State; E. D. Sundstrom, Ph.D. Utah; C. L. Travis, Ph.D. California (Davis).

Assistant Professors:
J. W. Erickson, Ph.D. Tennessee; D. S. Freeman, Ph.D. Tennessee; S. R. Friedlander, Ph.D. Georgia State; K. L. Lounsbury, Ph.D. Michigan State; M. A. Pentz, Ph.D. Syracuse.

Honorary
A. Pentz, Ph.D. Syracuse.


Undergraduate

B.A. Major: (Concentration in General Psychology) Designed to give students broad and current background in the science and application of psychological methods and principles. Psychology 2500 and two courses from 3701-02 or 4711-12. Each is prerequisite to a major consisting of Psychology 3150, at least 4 hours of laboratory, field, or practicum courses, and 32 or more hours of upper-division psychology courses. (Concentration in Academic Psychology) Designed to prepare students for advanced work in the scientific, professional, and college-level teaching areas of psychology. Prerequisites to the major include Psychology 2500 and one course from 2520-30-40 Mathematics 1540-50-60 or 1840-50-60, and Biology 1210-20-30. The major consists of Psychology 3150, 8 hours of laboratory, field, or practicum courses (including 3315), and 28 or more 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 3000- and 4000-level courses.

General Psychology (4) An introduction to psychology, with emphasis on the development, methods, and contributions of the major movements and ideas which define contemporary psychology.

2518-28 Honors: General Psychology (3-4) First quarter participation is psychological research, either an enriched survey of general psychology. Second quarter participation is psychological research, either individually or group arranged. Prereq for 2518: Minimum ACT Composite 25; GPA 3.2. Prereq for 2528: Admission by consent of department. 2518-F; 2528-W.

2520 Biological Foundations of Behavior (3) Survey of theories and research pertaining to the biological foundations of behavior. Psychology 2500 recommended.

2530 Psychology as a Social Science (3) Introduction to individual behavior and experience in a social context. Psychology 2500 recommended.
2440 Psychology of the Individual (3) Study of individuals, their behavior, and the progressive changes in behavior that occur in natural environments; introduction to personality, developmental and abnormal psychology. Psychology 2500 recommended. E.

3120 Social Psychology (3) General survey of theories, methods, and research findings on individual behavior in a social context. Prereq: 2500. E.

3129 Social Psychology Laboratory (2) Prereq: 3120; recommended prereq: 3319.

3140 Environmental Psychology (3) Influences of physical environment on individual experience, interpersonal relations, and social systems. Includes such topics as noise, temperature, crowding, air pollution, urban settings. Prereq: 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. Prereq: 2 years of high school algebra or one course in college algebra. E.

3210 Learning and Thinking (3) Study of theoretical and empirical basis of learning and thinking. Prereq: 2500. E.

3219 Laboratory in Learning and Thinking (2) Prereq: 3210; recommended prereq: 3319.

3220 Motivation and Emotion (3) Current theories, approaches, and their development. Prereq: 2500. E.

3240 Psychology of Music (3) Introduction to psychological study of musical sounds and instruments; theories of rhythm, melody, and their relation to the psychology of spoken language. Prereq: 2520.

3319 Introduction to Research in Psychology (3) Basic techniques of research in behavioral science, including experimentation and naturalistic observation.

3550 Child Psychology (3) Origin and principles of behavior in infancy and childhood; physical, intellectual, social, emotional, and language behavior of the normal child. Prereq: 2500 or equivalent; 2540 recommended. (Same as Educ. Psych. 3555.) E.

3559 Laboratory in Child Psychology (2) Field and laboratory studies of child development. Prereq: 3550 and recommended prereq: 3319.

3570 Psychological Problems in Childhood (3) Considers functional and developmental psychopathologies occurring in infancy and childhood, e.g., infantile autism, fears and phobias, and learning problems. Major con-temporary theories and empirical research are emphasized. Prereq: 3550.

3816-26 Human Relations (3,3) The study of interpersonal relations and communication through structured small group experience.

3850 Abnormal Psychology (3) Constitutional and environmental factors in normal and abnormal behavior; neuromotor and psychologic reactions; non-technical discussion of diagnostic and therapeutic methods. Prereq: 2500; 2540 recommended. E.

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 (1-16) See page 160.

4102 Off-Campus Study (1-16) See page 160. Psycholoogy 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 courses 4103, 4107, 4109, 4110 combined.

4103 Independent Study (1-12) May be repeated. Maximum 12 credit hours. See note above. Prereq: Consent of instructor.

4107 Experience in Individual Instruction (1-4) Experience as a proctor in individualized instruction. Prereq: Consent of instructor. May be repeated. Maximum 6 hrs.

4109 Undergraduate Research (1-12) May be repeated. Maximum 12 credit hours. See note above. Prereq: Consent of instructor.

4110 Undergraduate Participation in Community Research (1-12) May be repeated. Maximum 12 credit hours. See note above. Prereq: Consent of instructor.

4115 Psychology of Sex Role Development (3) (Same as Educational and Counseling Psychology 4110). E.

4210 Topics in Social Psychology (3) Intensive analysis of several research topics. Prereq: 3120 or Sociology 3130. (Same as Sociology 4120.)

4220 Topics in Health Psychology (4) May be repeated. Maximum 8 hrs.

4220 Sensory Processes and Perception (3) Survey of sensory and perceptual processes with emphasis on audition and vision. Prereq: 3150; 2520 recommended.

4229 Laboratory in Sensory Processes and Perception (2) Prereq or coreq: 4230.

4480 Organizational-Industrial Psychology (3) Cannot be taken for credit by students who have credit for Management 3460. (Same as Management 4460.)

4510 Personality Theories (3) Survey of major approaches to understanding human personality and its development. Prereq: 2540; 3550 or 3590.

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: 3515-26 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 (3) Theory and construction of individual and group measures; survey of various methods of assessment of intelligence, personality, special abilities, and educational achievement. Prereq: 3150.

4650 Symbolic Processes (3) Logic of signs and symbol, deductive and associative thinking, memory, problem solving, and concept formation; nature, use, and development of language. Prereq: 3210 or consent of instructor.

4680 The Psychology of Language (3) Theories and descriptions of phonology, syntax, and semantics as applied to psychology and related disciplines. 4650 or linguistics background recommended.

4670 Cognitive Development (3) Theory and research on development of language and thinking in children and adolescents. Prereq: 3210 or 3550.

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 4720.)

4770 Psychology and the Law (4) Psychological aspects of the legal system. Prereq: Junior Standing.

4780 Psychology and Current Issues (3) Research and theory relevant to selected contemporary issues.

4 class hours per week. Prereq: Consent of instructor. May be repeated. Maximum 6 credit hours.

4830 History and Systems of Psychology (3) Evolution of the field of psychology, focusing on classic schools of thought and recent developments. Prereq: 9 hours of upper-division psychology.


4856 Programmed Learning (3) (Same as Educ. C & I 4860.)

4870 Contemporary Research in Behavior of Women (3) Study of interaction of cultural and biological factors in determining the behavior of women, with emphasis on psychological mechanisms involved. (Same as Women's Studies 4870.)

4880 Afro-American Psychology (3) Review and analysis of psychological literature on Afro-Americans. Prereq: Consent of instructor. (Same as Black Studies 4880.)

4910 Senior Seminar on Great Ideas in Psychology (3) Review of key ideas in psychology that have shaped our conceptions of humankind in basic ways. Contemporary definition of each idea will be explored against the background of the idea's historical development, with an attempt to understand the vicissitudes of each conception as a product of large social and scientific pressures. Recommended for Seniors.

GRADUATE General requirements for the master's degree and doctoral degree as well as course descriptions are given in the Graduate Catalog.

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, E. O. Liege, Ph.D. Vanderbilt; R. V. Norman, Jr. (Vice Provost), Ph.D. Yale.

Associate Professors: J. L. Fitzgerald, Ph.D. Chicago; M. L. Levering, Ph.D. Harvard.

Assistant Professors: M. W. Harris, Ph.D. Harvard. Adjunct, J. O. Hodges, Ph.D. Chicago; T. Paton, M.A. Yale; L. M. Tobe, Ph.D. Vanderbilt.

UNDERGRADUATE B.A. Major: Two options are available in religious studies. Designed to assure that students study at least two different religious traditions, and to attain skills to analyze and interpret theoretical issues in the study of religion, the basic option consists of at least 36 hours of religious studies courses at the 3000 level or above, including the following: (1) 3660; (2) one of the following: 3650, 3671, 3672, 3770; (3) 3370 and 3380; (4) two of the following, 3011, 3021, 3600, 3690, 3790, 3740, 3750; and (5) 4000 level seminar selected in consultation with the student's advisor. The remaining eight hours which complete the major requirement shall not include courses from related language studies.

As an alternative to the basic option, a student-initiated option is recommended for students who plan to pursue graduate study in religion or who have other special educational needs. A faculty member in religious studies will help a student formulate an individual program consisting of at least 36 hours of study at the 3000 level or above. Students whose educational goals would best be served by such a program are
encouraged to discuss this option as early as possible with a faculty member in religious studies. Once the proposal is formulated, it will be submitted to the faculty in religious studies for review.

Further details of all courses and on department courses are available in the department office, located in 501 McClung Tower, or from any member of the religious studies faculty.

A total of thirty to 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 Living Religions of the World (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.

2110-20 Founders in Religion (4,4) Introduction to religion in culture and society; critical examination of selected writings dealing with great religious founders. 2110—Religious figures such as Moses, Confucius, Socrates,Joseph Smith and Buddha. 2120—Religious figures such as: Muhammad, Lao Tzu, Krishna, Jesus and Nichiren. Prereq. for 2110: 2110.

2310-20 Criticism of Religion (4,4) Classical and contemporary forms of criticism of Western religious thought. 2310—Forms of criticism in their classical presentations (as in Voltaire, Spinoza, Nietzsche, Marx, Durkheim, Freud, Sartre, Russell. 2320—Contemporary issues involving critical perspectives on religion such as feminist, environmental; ethnic (American, American); liberation movements.

2810 Introduction to Religion (4) Introduction to the study of religion through selected historical traditions: East and West.

2811 Introduction to Ancient Near Eastern Religions (4) Introduction to study of religion through selected ancient Near Eastern and Mediterranean traditions.

2812 Issues in Religious Studies (4) Introduction to study of religion through selected religious problems and alternatives.

3011 Phenomenology of Religion (4) Examination of recurrent forms, forms, and patterns in history of religions, such as high gods, cultural heroes, initiation, and ascension.

3021 Religious Myth, Symbol, and Ritual (4) Study of interrelation of myths, symbols, and rituals among preliterate peoples through a specific motif, such as solar, lunar, and communal.

3050-70-80 History of Western Religious Thought and Institutions (3,3,3) 3050—First century to fifth century. 3070—Sixth century to 15th century. 3080—16th century to 1900. (Same as History 3050-70-80.)

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.

3232-33 Religious Aspects of Literature (4,4) 3232—Religious Themes in Classic Works. Major themes of Western religion as reflected in classic literary works; authors such as Vergil, Dante, Shakespeare, Milton, Blake, Goethe, Tolstoy. 3233—Religion and Literature: 20th Century. Religious themes in western writing such as Yeats, Eliot, Orwell, Kafka, Faulkner, Lawrence, Shaw, Camus, Sartre. Prereq. for 3232: 3233.

3311-12 Images of Jesus (4,4) Introduction to ancient and modern portrayals of Jesus, understood within their cultural milieu. Prereq.: for 3312: 3311.


3340 Judaism in the Common Era (3) Survey of literature and traditions of Judaism in the Common Era.

3370-80 The Christian Tradition (4,4) Introduction to the Christian religious tradition, its origins, development and formative impact on Western culture. 3370—Sacred writings of the tradition; basic forms of spirituality and polity. 3380—Unity and diversity of Christian theology in relation to such issues as human nature and society, nature of the cosmos, and relation of religion and culture. Prereq. for 3380: 3370.

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, ritual, and symbols and an inquiry into how certain political movements in Africa have been and are informed 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.

3550 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 3550.)

3560 Afro-American Religion in the United States (4) Historical and critical examination of formation and development of afro-american religious thought and institutions in the United States. (Same as Afro-American Studies 3560.)

3600-10 Religious Ethics (4,4) Historical and critical survey of religious ethics; basic theories and their application in social problems.

3605-06 Professional Responsibility (4,4) (Same as Philosophy 3605-06.)

3611 Medical Ethics (4,4) Same as Philosophy 3611.)

3620 Topics in Religious Ethics (4) Examination of particular theoretical issues and social problems from perspectives of religious ethics. May be repeated once for credit.

3650 Philosophy and Religion in India (4) (Same as Philosophy 3650.)

3660 Buddhists 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.

3690 Philosophy of Religion (4) (Same as Philosophy 3690.)

3710 Literature of the English Bible (3) (Same as English 3710.)

3711 Literature of the English Bible (3) (Same as English 3711.)

3715 Religious Thought in the Nineteenth Century (4) Major problems and themes in European and American religious thought between 1800 and the beginning of World War I.
ian, or Spanish through private study, tutoring, residence in foreign country, or the like should initiate a request for a proficiency test in the Office of the Dean of Admissions and Records. A student earning a grade of C or better on such a test will receive credit for a limited part of the course. Students are encouraged to proceed as rapidly as their achievement permits.

Note to Majors and Minors in French, Italian, or Spanish and Minors in Portuguese: Students who have completed nine hours of upper-division courses in French, Italian, or Spanish literature at The University of Tennessee, or equivalent work at other institutions, must either (1) have a minimum grade point average of 2.0 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. All majors must take upper-division courses under more than one instructor and must have an adequate pronunciation and an adequate reading knowledge of the language.

Latin American Studies. See Cultural Studies.

Certification for Teaching French or Spanish in Tennessee
Consult Certification Clerk, Room 212

Exemption for those who have completed:

- at least five years of study in French and/or Spanish as evidenced by an adequate reading knowledge of the language, or civilization. Students whose achievement permits.
- a grade of middle C on the current examination in French or Spanish 2130 or 2520.

Option of 4 hours credit must present appropriate amount of extra work above that required for 3 hours. Option of 4 hours credit must present appropriate amount of extra work above that required for 3 hours.

French (405)
B.A. Major: Consists of 36 hours in courses numbered 3110 or above. Students whose primary interest is literature must have the following courses (or their equivalent, with consent of the department): 3110-20-30 or 3810-20-30 (Aspects of Survey of Literature, 9 hours); 3410 or 3420 or 3430 or 3450 (Intermediate Composition and Conversation or Composition and Conversation for Careers in Business, 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 equivalent, with consent of the department): 3110-20-30 or 3810-20-30 (Aspects of Survey of Literature, 9 hours); 3410 or 3420 or 3430 or 3450 (Intermediate Composition and Conversation or Composition and Conversation for Careers in Business, 3 hours); 4210 (Phonetics, 3 hours): 4220 or 4230 (Advanced Grammar, 3 hours); 6 hours selected from courses 3410-20-30 or 3450 (Intermediate Composition and Conversation or Composition and Conversation for Careers in Business, 3 hours); 4210 (Phonetics, 3 hours); 4220 or 4230 (Advanced Grammar, 3 hours); 6 hours selected from courses 3410-20-30 or 3450 (Intermediate Composition and Conversation or Composition and Conversation for Careers in Business, 3 hours).

Minor: Consists of 24 hours in courses numbered 3110 or above, including the following:
3110-20-30 or 3810-20-30 (Aspects or Survey of Literature, 9 hours); 3410 (Intermediate Composition and Conversation, 3 hours); 4210 (Phonetics, 3 hours); 9 additional hours selected from courses in literature, language, or civilization. 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 French literature in English translation may not be counted toward either a major or a minor.

1110-20-30 Elementary French (3,3,3) This sequence strongly recommended for students intending to take upper-division courses in French. Must be taken in sequence. 3 hours and 2 labs.

1118-28-38 Honors Elementary French (3,3,3) Honors course for students of superior ability. 1118 or for students of superior ability in French. Incom- men admitted to 1128 and 1138 on basis of diagnostic test or conference with instructor, high school average.

Class held to maximum of 15 for individual attention. Class covers normal elementary French program for first year. Potential students are encouraged to take this course. Students passing 1110 with a grade of B or higher are eligible for 1128 and 1138. Students passing 1120 with grade of B or higher are eligible for 1138 rather than 1130.

1510-20 Elementary French (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2110-20-30 Intermediate French (2,2,2) This sequence strongly recommended for students intending to take upper-division courses in French. Must be taken in sequence. 3 hours and 2 labs.

2118-28-38 Honors Intermediate French (3,3,3) Honors course for students of superior ability in French. Incom- men admitted to 1128 and 1138 on basis of diagnostic test or conference with instructor, high school average.

Class held to maximum of 15 for individual attention. Class covers normal elementary French program for first year. Potential students are encouraged to take this course. Students passing 1110 with a grade of B or higher are eligible for 1128 and 1138. Students passing 1120 with grade of B or higher are eligible for 1138 rather than 1130. Students earning a grade of A or B in 2138 are eligible to take a proficiency exam for French 3000; credit for French 3000 given to students receiving a grade of A or B in this examination.

2510-20 Intermediate French (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2810-20 Panorama of French Culture (4,4) 2810 Cultural forces which produced the French nation; art, literature, architecture, music under French influence; emergence of classicism; and the culture. 2820 Arts in Age of Reason and trends in French culture during the Revolution and Age of Romanticism; bourgeoisie art of 19th century, and in modern movement of surrealism, dadaism, and existentialism.

2910-20-30 French Literature in English Translation (3,3,3-4) From origins through the classical period and the Age of Reason: The great dramatists, of the Rose, Rabelais, Du Bellay. 2920-The Classical and the Age of Enlightenment (4,4) La Princesse de Cleves, Voltaire, Rousseau. 2930- The 19th and 20th centuries: Balzac, Flaubert, Proust, Cocteau. Two change in literary fashion after World War II. Option of 4 hours credit must present appropriate amount of extra work above that required for 3 hours.

3000 French Transition (3) Development of linguistic necessary for satisfactory work in courses above 3000. Recommended for those who benefit from additional training beyond 2310 or 2520 in basic skills of reading, speaking, and writing French.

3010-20-30 Elements of French for Upper-
2518-28 Honors: Intermediate Spanish (4,4) Honors course 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 size limited to a maximum of 15 so that each student may receive more attention. Students follow enriched program with continuing 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 3000. Prereq: Spanish 1110-20-30, 1510-20, 1518-28, or equivalent.

2910-Masterpieces of 20th Century Spanish Literature (3-4,3-4,3-4) 2910—20th-century aspects of Golden Age literature: Unamuno, Lorca, Baroja, Ortega. 3910—Contemporary Spanish American fiction: Marquez, Borges, Fuentes, Asturias. No change in credit hours after add deadline. Option of 4 hours credit must present an appropriate amount of extra work above that required for 3 hours. (Same as Latin American Studies 3910-20-30.)

3000 Spanish Transition (3) Development of linguistic skills necessary for successful participation in courses above 3000. Recommended for students who feel they would benefit from additional training beyond 2130 or 2520 in basic skills of reading, speaking, and writing Spanish.

3110-20-30 Aspects of Spanish Literature (3,3,3) 3110—Introduction to Spanish literature, using selections from prose, drama, and poetry of the modern period; 3120—Aspects of Golden Age literature, including the mystics, Cervantes, and Lope de Vega; 3130—Aspects of modern Spanish literature, including Unamuno, Ortega y Gasset, and Garcia Lorca. Prereq: 2130, 2520 or equivalent. Recommended for literature majors. Not offered for graduate credit.

3310-20-30 Aspects of Spanish American Literature (3,3,3) Study (not usually chronological) of various periods of the literature; emphasis upon the genres of poetry, novel, drama) varies. May be taken in place of 3110-20-30. Prereq: 2130, 2520 or equivalent. (Same as Latin American Studies 3310-20-30.)

3410-20-30 Intermediate Composition and Conversation (3,3,3) Not offered for graduate credit.

4055-65-75 Survey of Spanish Literature (3,3,3) 4055-75—The Medieval Period: Cantar de Mio Cid, Libro de buen amor, La Celestina. 4055—The Golden Age: Lope de Vega, Cervantes, the picaresque novel, the Mystics, Calderon Cervantes. 4075—The Modern Period: Becquer, the Generation of ‘98, Lora, Ortega y Gasset, Cela. Prereq: Third-year literature sequence in Spanish or consent of instructor.

4101 Foreign Study (1-16) See page 160.

4115 Cervantes (3) Life and works of Cervantes, focusing on Don Quijote, but including other works; includes an introduction to Cervantes criticism and bibliography across the centuries. Prereq: Third-year literature course in Spanish or consent of instructor.

4125 The Comedia (3) Study of Golden Age dramas with emphasis on works by Lope de Vega, Tirso de Molina, Alarcón, and Calderon de la Barca. Prereq: Third-year literature course in Spanish or consent of instructor.

4135 Generation of ‘98 (3) Study of the books of Granzel and Lain Entralgo on the Generation: readings from Unamuno, Gaviel, Baroja, Azorin, Valle-Inclan, Angulo Machado, Jimenez, Benavente, O. Perez de Ortega y Gasset. Prereq: Third-year literature course in Spanish or consent of instructor.

4140 Theatrical Spanish (1-3) Performance in one or more Spanish plays. Prereq: Intermediate Spanish or equivalent and consent of instructor. May be repeated with consent of department. Maximum 6 hrs.

4160-70-80 Advanced Conversation (2,2,2) Intensive training in prepared and spontaneous conversations. Subjects may include current events, travel, and other events in literature and aspects of national culture. Prereq: Completion of 8 hours of courses on 3000 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) (Same as French, German, Russian, and Linguistics 4250.)

4260 Introduction to Historical and Comparative Linguistics (3) (Same as French, German, Russian, and Linguistics 4260.)

4270 Romance Linguistics (3) (Same as French and Linguistics 4270.)

4310-20-30 Latin American Civilization (3,3,3) Prereq: 2130, 2520, or equivalent. (Same as Latin American Studies 3010-20-30.)

4510 Special Topics in Nineteenth Century Spanish Literature (3) Prose, poetry and theatre of Spain in the Nineteenth Century. This course may focus on a genre, movement, or combination of several literary aspects. Course may be repeated with consent of department. Maximum credit 9 hours. Prereq: Intermediate Spanish or equivalent.

4618 Honors: Readings in Literature (3) Prereq: 3130, 3330, or equivalent and at least 3.0 on all university work. No credit for grade less than B.

4800-29-30-70 Topical Survey of Spanish American Literature (3,3,3) 4810—Prose fiction: major examples of the short story and novel. 4820—Poetry: land-mark figures of past and present. 4830—Drama and essay: the modern period. (Same as Latin American Studies 4810-29-30.)

GRADUATE
The Master's Program
See Graduate Catalog for requirements and course descriptions.

Russian
See Germanic and Slavic Languages.

Russian and East European Studies
See Cultural Studies.

Social Work (906)
Associate Professors: F. R. Baskind (Director), Ph.D. ACSW, Connecticut State University, F. J. Spiluzza, M.S.W., Tennessee.

Assistant Professor: V. W. Williams, M.S.W., A.C.S.W., Howard.

B.S. Major: Consists of 62 hours in professional foundation courses: Social Work 2000 (4), 2500 (3), 3400-10 (4,4), 4103 (3, 3), 3110-4120-30 (4,4,4), 4200 (4), 3500-10 (4,4), 4520-30 (3,3) which must be taken in sequence; 19 hours in the corequisite courses: Human Services 3200 (4), Sociology 3910-20 (4,4), Child and Family Studies 3515 (3), and an Economic elective (4); and 27 hours in the required courses, Zoology 2510-20-12 (Anthropology 2530 (4), Biological Sciences 2510 (4), Psychology 2540 (3), and Women's Studies 2101 (4). Students who graduate from this program are prepared for beginning professional practice at the baccalaureate level as a social worker. The program is accredited by the Council on Social Work Education. For a complete description of the professional program see page 158.
2000 Introduction to Social Work (4) Introduction to the profession of social work designed to assist students to develop an awareness of the knowledge, values, and skills of the social work profession, and to consider their ability for a career in social work.

2500 Social Welfare (3) The development, structure and function of major social welfare institutions. Emphasis on changing human needs and the organized societal response. Focus on how and why our present social welfare system developed and presently functions.

3110 Social Work Practice I (4) Examines the knowledge, values, and skills required for entry level practice in a variety of human service settings. Particular attention will be on the contact stage of the social work problem solving process. Different size and diverse client systems, ethnic—sensitive assumptions, and the workers regard for the person-environment configur-ation will be considered. Prereq: Preliminary association with major.

3400 Human Behavior and the Social Environment I (4) Examines the impact of such conditions as ethnicity, racism, sexism, and socio-economic status on individual growth and behavior. Specific focus is on the application of this knowledge to social work prac-tice. To be taken in sequence. Prerequisite: Preliminary association with major.

3410 Human Behavior and the Social Environment II (4) Continues to develop the framework presented in Social Work 3400 and examines how the biological, psychological, social-structural, and cultural aspects of behavior contribute to the development of one's human diversity as individuals move through the life cycle. Differences in the experiences and members of different groups will be viewed as equally valid attempts to perform life tasks and meet common human needs. Prereq: Social Work 2000 and 3400.

3500-10 Field Practice in Social Work I, II (1,4) An eleven-month field experience in which students can apply classroom material to practice situations in order to develop professional skills, values, and attitudes. Each week a facility seminar focuses on the integration of knowledge with practice experiences. Prereq: Preliminary association with major.

4101 Foreign Study (1-16) See page 160.

4102 Off—Campus Study (1-16) See page 160.

4103 Independent Study in Social Work (3) Provides the opportunity to develop a research proposal and follow through with an investigation of an area in sociology in which the student has an interest. Ongoing faculty guidance, supervision, and evaluation is required. Prereq: Full association with the major.

4120 Social Work Practice II (4) This course is the second offering in a sequence of three courses which examine the knowledge, values, and skills required by entry level professional social workers who work with multiple size and humanly diverse client sys-tems. Special attention is focused on the contract stage of the social work problem solving process. Prereq: Full association with major.

4130 Social Work Practice III (4) Essential theory, values, and skills of professional social work inter-vention. Emphasis on direct social work practice with individuals, groups, and families. Focus on professionalism with clients characterized by social and personal deprivations. To be taken in sequence. Concurrent skills laboratories. Prerequisites: Full association with major.

4200 Social Welfare Policies and Issues (4) Specific social welfare policies examined in depth in relation to the societal problems, structure, program, and services approaches. Special focus on developing an analyti-cal framework and social change efforts. Prerequisites: Full association with major.

4520-30 Field Practice in Social Work III, IV (8,8) A sixteen-hour-per-week supervised agency field prac-ticum in which students learn how to integrate theory and practice and critically evaluate use of skills as a professional helping person. Weekly faculty directed seminars.

Sociology (915)

Professors:
D. M. Betz, Ph.D. Michigan State; J. A. Black, Ph.D. Iowa; D. J. Champion, Ph.D. Purdue; L. Ebersole (Vice Chancellor for Administration), Ph.D. Pennsylvania; D. W. Hastings, Ph.D. Massachu-setts; D. R. Ploch, Ph.D. North Carolina; N. E. Shover, Ph.D. Illinois (Urbana); S. E. Wallace, Ph.D. Minnesota.

Associate Professors:
T. C. Hoed (Acting Head), Ph.D. Duke; D. Cletland, Ph.D. Michigan State; R. G. Ferrin, Ph.D. British Columbia.

Assistant Professors:

Instructor:
D. Harris, M.A. Tennessee.

UNDERGRADUATE
B.A. Major: Consists of 36 upper-division hours in sociology. Eight lower-division hours in sociology are prerequisite to a major. Students will select 20 hours within one of the following six programs of study:

(1) Humanistic Sociology: Designed for students who wish to develop an appreciation of how the social world works and of the individual's place in it. Courses include: Collective Behavior, Resource Scarcity and Social Change 3015, Social Psychology 3130, Prejudice and Racism 3330, Stratification 3350, Urban Environment 3410, American Society 3780, Sociological Theory 3810, Social Research 3910, Sociology of Sport 4050, and Social Movements 4930.

(2) The Social Service program provides a broad background for students interested in the helping professions. Courses include: Social Psychology 3130, Deviance 3140, Sociology of Medicine 3160, The Family 3220, Poverty and Inequality 3340, Urban Problems 3420, Juvenile Delinquency 3510, Social Research 3910, Socialization across the Adult Life Cycle 4160, and Sociology of Aging 4730.

(3) The Pre-professional program assists in preparation for graduate study in law, urban studies, planning, ecology, and sociology. Courses include: Political Sociology 3030, Social Psychology 3130, Urban Environment 3410, Occupations as Organizations 3820, Sociological Theory 3810, Social Research 3910, Elementary Social Statistics 3920, Social Change 4540, and Formal Organization 4550.

(4) The Research Analyst program is preparation for data analysis in public and private research organizations and in business and industry. Courses include: Stratification 3350, Social Research 3910, Elementary Social Statistics 3920, Population Problems 4110, Theory of Attitudes and Values 4160, and selected courses in the department. Students should consult with the Undergraduate Coordinator.

(5) The Human Management program is preparation for those who manage people as part of their occupation. Courses include: Social Psychology 3130, Gender in Society 3150, Communicative Processes 3320, Prejudice and Racism 3330, Occupations 3810, Occupations as Organizations 3820, Social Research 3910, and Formal Organizations 4560.

(6) The Criminal Justice program is preparation for careers in corrections, law enforcement, parole and probation, and criminology. Courses include: Collecting Behavior 3010, Deviance 3140, Prejudice and Racism 3330, Juvenile Delinquency 3510, Social Research 3910, Sociology of Law 4050, Punishment and Correc-tions 4130, and Criminology 4310. A Minor consists of 24 upper-division hours. Eight lower-division hours in soci-ology are a prerequisite to a minor.

1510 General Sociology (4) Social origins, structures, forces, processes, and products.

1518 Honors: General Sociology (4) Enriched intro-duction to sociological principles and research. Permission of department required. B average or better. Selected freshman.

1520 Sociology of Social Problems (4)

1528 Honors: Social Problems (4) Permission of depart-ment required. B average or better. Selected freshman.

1530 Contemporary Social Change (4) Introduction to basic concepts and principles used in analyzing social change. Emphasis on contemporary society.

2150 Introduction to Sociology Through Literature (4) Social processes such as social control and social-ization, sociological concepts such as status and role, and the other elements of a basic introduction to sociology are examined in this specialized introduc-tion to sociology.

2520 Social Problems: Crime and Justice (4) Specialized introduction to social problems confined primarily to an analysis of American experiences in areas such as the cause of crime, the operation of the police and courts, and the correctional process.

3010 Collective Behavior (4) Analysis of collective phenomena emphasizing crowd behavior, responses to disasters, popular crazes, mass movements, and social protests.

3015 Resource Scarcity and Social Change (4) The relationship between scarcity of natural resources and changes in societal beliefs and social structure. Topics include social and psychological limits to growth and collective action problems.

3030 Political Sociology (3) Sociological analysis of American political system. Attention given to consid-eration of concept of power, elitist-pluralist controversy, and-ideology debate, and related topics.

3130 Social Psychology (4) Social psychological anal-yzing of social behavior emphasizing its acquisition, its enactment and its dynamic nature.

3140 Deviance and the Social Order (4) Examination of relations between deviance and social order. Various types of social deviance considered, with focus on their structure, social factors related to process of becoming deviant, and consequences of deviant conduct.

3160 Gender in Society (4) Exploration of gender in society utilizing various sociological perspectives with special focus on the relationships between social struc-tures, social roles and gender identities. (Same as Women's Studies 3150.)

3160 Sociology of Medicine (4) Introduction to soci-ological approach to study of health and medicine. Emphasis on relationship of demographic character-istics to the prevalence of and organization of health care facilities, and staff-patient relationships.

3220 The Family (4) Examines theoretical frameworks and methodological approaches and their
application in the sociological study of past and present family forms.

3320 Sociology of Communicative Processes (4) Sociological dimensions of communication and of communication processes at the organizational and interpersonal levels.

3330 Prejudice and Racism in the United States (4) (Same as Afro-American Studies 3330)

3340 Comparative Poverty and Inequality (4) Comparative descriptive and sociological analysis of poverty and inequality in the modern world. (Same as Afro-American Studies 3340)

3350 Social Stratification (4) Study of economic class, proletarian life styles, and power hierarchies; causes and consequences of structured social inequality.

3410 Urban Environment (4) Introduction to urban environment; emergence of the city; cities of New World; rise of metropolitan America; urban society; social worlds within urban environment.

3420 Urban Problems (4) Crises and the urban con-science; urban problems and interventions; housing, urban renewal, and neighborhood conservation; the urban poor, the disoriented, and alienated; planning for urban youth; the urban elderly; the social and physical planning process; new towns.

3510 Juvenile Delinquency (4) Critical assessment of nature of the delinquency problem, major sociological theories and their implications for control, and administration of juvenile justice.

3610 Sociology of Occupations (4) Introduction to occupations and their relation to the individual and society; technology and occupations; unequal rewards and occupations; social organization and occupations.

3620 Occupations as Organizations (4) Occupations as interest groups; their impact on work settings and the wider community.

3672 Religion and Society in Japan (4) (Same as Religious Studies 3672)

3710 Corporate and Organizational Deviance (4) An introduction to analysis and understanding of crime and deviance committed by organizations. Intended for students from diverse curricula, the course examines case studies of corporate and organizational deviance. A principal focus is a critical examination of organized responses to this type of deviance, especially the role of regulatory agencies.

3780 American Society (4) An analysis of the institutional organization of contemporary American society, with attention to institutional interrelations (e.g., between the central and local government), characteristics of important social groups (e.g., educators, political parties, and workers), and major forces of change.

3810 Sociological Theory (4) Survey and analysis of development of sociological theory from time of Comte to present.

3910 Introduction to Social Research (4) Scientific method applied to social phenomena; formulating test hypotheses; techniques for collecting data; measuring social variables; interpreting research findings. Lectures and laboratory.

3920 Elementary Statistical Methods (4) Statistics used in social research; elementary descriptive techniques; measures of central tendency; dispersion; elementary statistical inference; tests of significance for parametric and non-parametric data.

4000 Special Topics (4) Student-generated course offered at convenience of department under student initiative. Scope of subject matter determined by student and instructor with consent of department. Elective credit only. Prereq: Determined by department.

4030 Society and Law (4) General treatment of social origins and consequences of law and legal process. Particular emphasis on problems of law and social change, and on structure and functioning of legal sanctions. Law and law-like phenomena in formal organizations and primitive societies.

4050 Sociology of Sport (4) Social organization and meaning of sport. The difference between sport and play and games, social stratification and sport, sport as an occupation, place of sport in mass culture, sport subcultures, and reciprocal influences of sport and cultural milieu.

4102 Off-Campus Study (1-18) See page 160.

4103 Independent Study (1-16) See page 160.

4110 Population Problems (4) Demographic factors and social and cultural trends in fertility, mortality, population growth, migration, distribution, and composition; population policy.

4120 Topics in Social Psychology (4) (Same as Psychology 4120).

4160 Theory of Attitudes and Values (4) Study of organization, functions and measurement of attitudes and values; approaches to attitude change; and relationship to attitudes, values and behavior.

4190 Socialization Across the Adult Life Cycle (4) The social process through which people acquire skills and abilities and undergo identity transformations and types of adult socialization (e.g., occupational, institutional) are emphasized.

4330 Urban Ecology (4) Examination of public, private, collective, and individual space. Classical school ecology, its problems, and area analysis; conceptual and cognitive symbolic ecology emphasized. (Same as Urban Studies 4330).

4410 Educational Sociology (3) (Same as Educ. C & I 4410).

4500 Criminology (4) A systematic inquiry into the causes and control of crime and criminals. Emphasis is on causation.


4520 Criminal Justice II: Corrections (4) The historical development of institutions and programs such as juvenile training schools, prisons, probation and parole. Analysis of their operation and impact is special focus. Discusses evaluation research and its application to correctional programs. Recommended: Sociology 4500.

4530 Community Organization (4) Structure; function; linkages. Change and development and important community studies. Emphasis on sociological analysis, not on implementation of change.

4540 Development and Underdevelopment (4) Critical examination of theories which attempt to explain different development in the modern world. In-depth examination of development issues in selected regions of the world. (Same as Religious Studies 4540).

4560 Formal Organization (4) Analysis of bureaucracy, division of labor, delegation of authority, coordinated communication under system of rationality.

4730 Sociology of Aging (4) Emphasizes how roles and statuses change with age in relation to the major social institutions and explores the impact that the rapidly increasing number of older people have on society, as well as the effect of society on older people.

4820 American Minority Groups (4) Minority groups and social structure in American society; analysis of intergroup relations with attention given to both past and present relationships of selected groups to broader society.

4930 Social Movements (4) Development, organization, and function of social movements; attention is given to ideology, leadership, and organization of political, religious, and other types of social movements.

4940 Sociology of Religion (4) Interrelationship of society, culture, and religion. (Same as Religious Studies 4940.)

4988 Honors: Sociology (4) Intensive study and research under faculty direction, including writing of senior thesis. Course credit may be split into two quarters. Candidacy is open only to majors who have shown a marked capability for independent study and have grade averages of at least 3.0 in the College of Liberal Arts and 2.5 in the department. Prereq: Senior standing.

GRADUATE

The General requirements for the master's and doctoral degrees as well as course descriptions are in the Graduate Catalog.

Spanish

See Romance Languages.

Speech and Theatre

Professors:

Associate Professors:

Assistant Professors:

UNDERGRADUATE

B.A. Major: The Department of Speech and Theatre offers a single undergraduate degree, the Bachelor of Arts in Speech and Theatre. Majors must declare a concentration in either (a) Speech or (b) Theatre.

(a) Major in Speech and Theatre (Speech concentration)

Speech 1211-21 is a prerequisite to a concentration which consists of: (a) 2 of the following 4 Speech courses: 2021, 2311 (or 3551 by permission), 2331, 2351; (b) 30 additional hours of Speech courses numbered 2000 or above; 2 (c) at least 24 of the hours listed above must be numbered 3000 and above.

(b) Major in Speech and Theatre (Theatre Concentration) Theatres 1320-30-40 is prerequisite to a concentration which consists of: (a) Theatre 2111, 2211-21, 2231, 2252-53-54, 3252-53-54, 3451; (b) 19 additional hours of Theatre courses numbered 2000 or above1, 12 hours of which may be cognate areas approved by the department; (c) at least one half of the hours in the concentration must be earned at the 3000-level and above.

Minors: Two minors are offered: (a) Speech and (b) Theatre.

(a) Minor in Speech:

i. Prerequisites: Speech 1211, 1221.

ii. Requirements: 24 hours in Speech courses numbered above 3000.

1 Students majoring in Speech and Theatre with a Speech Concentration may choose an emphasis in Oral Interpretation, Playwriting, or Performing.

2 Students choosing a Theatre Concentration must emphasize one of the following areas: history and criticism, playwriting, performance, production or oral interpretation.
4451 Rhetorical Theory and Criticism (4) Survey of Western rhetorical theory; contemporary approaches to criticism of public address.

4580 Rhetoric of the Women's Rights Movement (4) Historical and critical study of public address in campaign for women's rights from the 1830s to present. (Game as Women's Studies 4580.)

4571 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.

4930 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

Consult the Graduate Catalog for listing of graduate level courses.

Theatre (976)

1230-34 Introduction to Theatre (3,3,3) 1320—Understanding theatre: thought, philosophy and aesthetics. The history of theatre; design and technical theatre participation required. May be repeated. Maximum credit 4 hours.

1231 Argumentation and Debate (4) Reasoned decision-making with emphasis on analysis, evidence, reasoning, constructing and refuting arguments.

2351 Interpersonal Communication (4) Communication theory in its application to self-talk, casual communication, structured communication, and intimate communication.

2361 Business and Professional Speaking (4) Basic principles of oral communication within organizations. Listening 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, communication barriers, non-verbal communication, business communication.

3018 Nonverbal Communication (4) Exploration of nonverbal communication from human communication perspective; origins and research, usage and coding of nonverbal 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.

3361 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: 2331 or consent of instructor.

4461 Quantitative Research Methods in Speech Communication (4) Designing experiments; planning field studies; using statistical analysis.

4541 Historical and Critical Study of Drama (4) Drama in performance with particular emphasis in theatre archi-...
which are on-going structured conversations on a particular topic or nexus of topics; 2) learning communities, which are year-long residential educational environments focused on a common theme; and 3) interdisciplinary courses, which are intercollegiate and team-taught. University Studies explores important contemporary issues which are sufficiently fundamental to involve the study and attention of faculty and students from all colleges. Currently, faculty and students in the Program are investigating three broad areas of interest: 1) Technology, Society, and the Common Good; 2) Land, People, and the Common Good; and 3) Aging, Society, and the Common Good. Further information is available through the Dean’s Office, The College of Liberal Arts, 226 Ayres Hall.

1000 The First Course (3) An introduction to university education as an adventure in personal growth and professional development. ENC.

2001-02-03 University Learning Seminar (1,1,1) Laboratory course for facilitating integrative thinking and learning. Only for students enrolled in a University Learning Community.

2110-20-30 Topics in University Studies (3,3,3) Variable content course studies and problem-solving approaches to explore interdisciplinary issues. Only for students enrolled in a University Learning Community.

3110-20 Technology, Society and the Common Good (3,3,3) Introduction to the interlocking relationships between population, food production and distribution, environmental pollution, depletion of non-renewable natural sources, global arms races. 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.

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. Oklahoma State; J. Q. Carlson (Emeritus), Ph.D. Pennsylvania; A. C. Cole (Emeritus), Ph.D. Ohio State; A. C. Echternacht, Ph.D. Kansas; D. A. Elier, Ph.D.

Minor: Consists of 24 hours of zoology, or prerequisites for all upper-division courses, with the exception of 3090 and 4940. Additional prerequisites are included with course descriptions.

B. A. Major: Consists of Biology 3110, 3120, 3130; 18 hours of upper-division zoology courses and 3 hours of Zoology 3990 and 3 hours of Zoology 4990. Perspectives in Zoology must also be included. Prerequisites to this major are: Biology 1210-20-30 or Zoology 1118-28 (Zoology 2820-30 may be substituted for Zoology 1118 or Biology 1220) and Chemistry 1110-20-30. Corequisites are: (1) a Mathematics and Statistics/Computer Science package consisting of Mathematics 1550-60, 1840-50 or 1841-51 (Mathematics 1841-51 is the recommended choice) plus one of the following: Mathematics 1860, 3050, 3060, 3861, Psychology 3150, Computer Science 1510, 1610, Plant and Soil Science 3610; (2) a year sequence in Physics (except 1410-20-30).

Note: Students majoring in zoology are advised to exercise care in fulfilling Science and Mathematics requirements. Mathematics 1840-50 or 1841-51 or 1550-60-70 and Chemistry 1110-20-30 or equivalent (20 or 21 hours altogether) must be completed by all zoology majors.

Minor: Consists of 24 hours of zoology, or biology and courses. (Zoology courses must be at the upper-division level; but 3000-level biology courses may be used, e.g. Biology 3110, 3120, 3130.) Prerequisites to this minor are Biology 1210-20-30 or Zoology 1118-28-38 and Chemistry 1110-20-30.

Note: Certain Zoology courses require organic chemistry or other prerequisites—consult the catalog description for each course.

Many courses in this department are offered only in specified quarters. Students should plan in advance the proper sequence. Information on the courses listed above is available in the departmental office.

1118-28-38 Honors: Fundamentals of Zoology (4,4,4) Course designed for superior students in any field who are interested in obtaining a solid foundation in zoology. On completing this sequence students may register for core Biology 3110-20-30. Honors zoology is open to all students with a minimum G.P.A. of 3.5 in college. Students must achieve at least a B in any quarter to be eligible for the next quarter. Students who do not satisfy this requirement must complete the sequence with appropriate quarters of Biology 1210-20-30. Must be taken in sequence. 1118 (Fall)—Processes, Structure and development, 1119 (Winter)—Genetics and phylogeny, 1138 (Spring)—Ecology, independent projects. Each quarter consists of six hours of combined lecture and lab. Students who receive credit for this course may not receive additional credit for Biology 1210-20-30 or Botany 1110-20 or 1118-28.

2460-70-80 Human Anatomy and Physiology for Nurses (3,3,3) Fundamentals of human anatomy and physiology. 2 hours and 1 lab.

2461-71-81 Human Anatomy and Physiology for Nurses (4,4,4) Same as 2460-70-80 except 2 hrs. and 2 labs.

2510-30-30 Human Biology (4,4,4) For non-majors.
Not available for major credit in zoology and biology.

2910—What we are, diversity of life forms, uniqueness of man, cell biology, reproduction, development, principles of genetics. 2526—How we live, physiology of movements, utilization of food, respiration, circulation, excretion. 2530—Conflict. Infection and immunity, aging, vascular disorders, genetic disorders, cancer, nutritional inadequacies, human ecology, genetic engineering. May be taken in any sequence. 3 hrs. and 1 lab.

2920-30 Human Physiology (4,4) Fundamentals of biology; principles of human physiology. Must be taken in sequence. Prereq.: One year of college chemistry. 3 hrs. and 1 lab.

2990 Human Anatomy (4) Gross and Microanatomy of the human. Prereq.: 1 year of an introductory Biology course or Zoology 2920-30 or equivalent. 2 hrs. and 2 labs. (Does not carry credit for Biology or Zoology Majors).

3050 Comparative Vertebrate Embryology (5) Developmental morphology of selected vertebrates. 2 hrs. and 3 labs.

3060 Comparative Vertebrate Anatomy (5) Phylogeny and anatomy of organ systems. Dogfish shark and cat primarily used in laboratory. Three hrs. and 2 labs.


3090 Biology and Human Affairs (3) (Same as Botany 3090.)

3110 General Entomology (5) Introduction to insects; basic structure, development, behavior; classification of insect orders and representative families; interpretation and use of keys. 3 hrs. and 2 labs.

3150 Invertebrate Zoology (5) Biology of invertebrates (except insects) with emphasis on ecology and behavior. Prereq.: Biology 3150. 3 hrs. and 2 labs.

3220 Physiology of Reproduction (3) (Same as Animal Science 3220.)


3410 Bioethics (3) Relationships 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.)

3890 Junior Seminar (1-3) Topic of current interest. May be repeated for credit with consent of department. Maximum 6 credit hours.

3920 Human Endocrinology (4) Basic course in human endocrinology with emphasis on the 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 interest. 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 3 hours.

4007-8-9-10-11-12-13-14-15-16-17 Minicourse in Zoology (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. Consult departmental listing for actual topics offered. Prereq.: As posted. May be repeated for credit. Maximum 12 hours.

4050 Developmental Biology (4) Experimental morphogenesis, fertilization, cellular interactions, hormonal effects, and related topics with examples drawn primarily from invertebrates and vertebrates. Prereq.: 3050. 2 hrs. and 2 labs.

4110-20-30 Undergraduate Research Participation (2,2,2) Experience in active 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.

4180 Mammalogy (4) Classification, evolution, distribution, reproduction, populations, and behavior. 2 hrs and 2 lab or field periods.

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 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.

4250 Environmental Physiology (4) Survey of physiological mechanisms to animal ecology and to survival of animals in diverse environments. Prereq.: Biology 3120-30, 2 years of chemistry.

4259 Comparative Animal Physiology Laboratory I (1) Coreq.: 4250.


4269 Comparative Animal Physiology Laboratory II (1) Prereq.: 3080 and consent of instructor; coreq. 4260.

4270 Immunology (3) (Same as Microbiology 4270.)

4280 Comparative Endocrinology (3) Comparative analysis of the physiology and morphology of endocrine glands in vertebrates and invertebrates. Their role and interaction in maintenance of the organism and species. Prereq.: 3060 or equivalent. 3 hours and one 3-hour lab.

4290 Herpetology (4) Classification, distribution, life histories, collection, and identification of amphibians and reptiles, primarily of local species. 2 hours and 2 lab or field periods.

4300 Omnidermatology (4) Morphology, physiology, behavior, reproduction, populations, evolution, field identification. 2 hours and 2 labs or field periods.

4320 Microtechnique (4) 3320 recommended. 2 hrs. 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.


4410 General Parasitology (4) Morphology, taxonomy, and ecology of parasitic worms and protozoa, with emphasis on host-parasite relationships. 3 hrs. and 1 lab. Prereq.: Biology 3130 or consent of instructor.

4560 Introduction to Aquatic Ecology (4) Introduction to the physiochemical nature of the inland waters. Biotic communities are described and their interrelationships explored. Prereq.: Chemistry 1110-20-30 and Biology 3130. 2 hrs. and 2 labs.

4700 Arachnology (4) Biology of spiders, mites, scorpions, and relatives. Prereq.: 3110 or 3150. 2 hrs. 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 orders. 4830—Taxonomy of minor orders and immature forms. Prereq. for 4820-30: 3110 or consent of instructor. 2 hrs. 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 hrs. and 1 lab.

4990 Perspectives in Zoology (3) Critical analysis of selected readings in biology. Prereq.: Senior standing.

GRADUATE
Consult the Graduate Catalog for listing of graduate level courses.
The College of Nursing at The University of Tennessee, Knoxville, was established in July 1971 in response to a long-recognized 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 human beings, society, and health. It is based on the belief that nursing has equal concern for the prevention of illness, the promotion of health, and the care of the sick. 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, students are required to successfully complete 12 quarters of full-time study or their equivalent. 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. One hundred eighty-nine quarter hour credits must be successfully completed in order for the student 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 p. 17 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 removed the D or F. 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 POLICIES AND PROCEDURES

(1) High School applicants will automatically be associated with the college if they have a GPA of 3.00 or higher and an ACT composite of 22 or higher.

(2) Other high school applicants who are otherwise admissible to the University will be granted university student status with 'nursing interest.' All university students with a nursing interest will be...
examinations whenever these are appropriate and available. RN's who have completed two quarters of general chemistry with a grade of C or better in each course have satisfied the chemistry requirement if these courses were taken within ten years prior to their association with the college.

(9) Registered nurses must be within 18 hours of completing lower-division requirements before they may enroll in Nursing 2810. Nursing 2810 must be successfully completed prior to taking or challenging any other nursing courses. The following nursing courses must be successfully completed by all RN's: 2810, 3230-40-60, 4440-4660, 4760, 4860. Nursing 3110, 4110 and 4230 may be challenged.

**COURSE LOAD**

The maximum credit hours per quarter allowed for any student without special permission is 18.

**BACHELOR OF SCIENCE IN NURSING CURRICULUM**

The following curriculum leads to the Bachelor of Science in Nursing degree. A minimum of 189 quarter hours of credit is required.

**FOR NON NURSES**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
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<tbody>
<tr>
<td><strong>Lower Division</strong></td>
<td></td>
</tr>
<tr>
<td>General Chemistry</td>
<td>12</td>
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<tr>
<td>Mathematics</td>
<td>9</td>
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<tr>
<td><strong>General Biology</strong></td>
<td>4</td>
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<tr>
<td>Anatomy and Physiology</td>
<td>12</td>
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<tr>
<td>Child Psychology or Child Development</td>
<td>3-4</td>
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<tr>
<td>Psychology</td>
<td>6</td>
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<tr>
<td>Sociology and/or Anthropology</td>
<td>12</td>
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<tr>
<td>Nutrition</td>
<td>3</td>
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<tr>
<td>Microbiology (laboratory required)</td>
<td>4-5</td>
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<tr>
<td>Genetics</td>
<td>4</td>
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<tr>
<td>Nursing 2800</td>
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**Upper-Division**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Nursing 3010 (8), 3110 (4), 3410 (4), 3210-20 (18), 4110 (10), 4230 (10), 4440 (3), 4510-20 (8), 4860 (3), 4760 (6), 4860 (3)</td>
<td>75</td>
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<tr>
<td>Statistics</td>
<td>3-4</td>
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<tr>
<td>Medical Ethics</td>
<td>3</td>
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<tr>
<td>Electives</td>
<td>16-14</td>
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</tbody>
</table>

14 hours of the total elective requirement must be humanities courses.

**FOR REGISTERED NURSES**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
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<tr>
<td><strong>Lower-Division</strong></td>
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</tr>
<tr>
<td>General Chemistry</td>
<td>8-12</td>
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<tr>
<td>English Composition</td>
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<tr>
<td>General Biology</td>
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<td>Mathematics</td>
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<tr>
<td>Anatomy and Physiology</td>
<td>12</td>
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<tr>
<td>Psychology</td>
<td>8</td>
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<tr>
<td>Child Psychology or Child Development</td>
<td>3-4</td>
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<tr>
<td>Sociology and/or Anthropology</td>
<td>12</td>
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<tr>
<td>Microbiology (laboratory required)</td>
<td>4-5</td>
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<tr>
<td>Nutrition</td>
<td>3</td>
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<tr>
<td>Genetics</td>
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70-76

**Upper-Division**

| Statistics | 3-4 |
| Medical Ethics | 3 |
| Nursing 2810 (4), 3230-40-60 (14) or 3210-20 (18), 3710 (4), 4110 (10), 4230 (10), 4440 (3), 4510-20 (6), 4660 (3), 4760 (6), 4860 (3) | 75 |

67-71

Electives including 14 hours in humanities courses, to total 189 quarter hours.

_May be challenged._

Registered nurses who have completed Chemistry 1410-20 prior to admission to the college have satisfied the chemistry requirement. All other RN's must complete the 12 hour sequence.

Nursing 2810: students must be within 12 hours of completing lower-division requirements before taking or challenging any nursing courses. Nursing 2810 is prerequisite to all other nursing courses.

**Nursing (720)**

**Professors:**

S. E. Hart (Dean), Ph.D. New York; D. H. Goodfellow, Ph.D. Peabody; M. E. Grover, Ph.D. Illinois; J. N. Mozingo, Ph.D. Walden.

**Associate Professors:**

J. A. Greene, Ph.D. Vanderbilt; B. M. Reid, Ph.D. Texas.

**Assistant Professors:**


**Instructors:**

S. M. Bowen, M.S., Tennessee; J. H. Brown, M.S.N. Tennessee; C. Goforth, M.S.N. Vanderbilt; S. M. Helton, M.S. Texas Woman's; L. C. Lindsay, M.P.H. Tennessee; J. M. Pate, M.N. Emory; E. R. White, M.S.N. Oklahoma.

**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, 4200-10, 4260, 4280 and 4450.

**2410 Integrated Biomedical and Health Science (1-5) Examination and application of selected theories from physics, cellular biochemistry, genetics, microbiology and nutrition to the nursing process. Various modules each carry one credit. Prerequisite: One year of biology or chemistry and consent of instructor. E 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. Three hours and 1 lab. Prerequisite: All lower-division requirements and selection for progression to upper division; coreq: Biology 3140, Nutrition 3020, and Microbiology 2910-19. S, SU.

**2810 Transition to Professional Nursing (4) Review of current status of profession; analysis of nursing
process as applied to a shifting health care delivery system; ecological approach to the degree of professional nursing and of the conceptual framework of the baccalaureate program. 3 lectures, 1 lab. Prereq: RN status or consent of instructor. F.

3110 Pharmacology (4) Biochemical and pharmacological effects of drugs and medications on the human body. Positive and negative pharmacological reactions and interactions between and among drugs. Prereq: Chemistry 1510-20, 3200. F, S.

3170 Wellness and Lifestyle (3) Examines models of wellness; exploration of UTK's philosophy of professional nursing and of the conceptual framework of the baccalaureate program; exploration of UTK's philosophy of professional nursing and of the conceptual framework of the modern health sciences to solution of nursing problems. Includes the analysis, planning, implementation, and evaluation of care provided to students who have taken 3210 and/or 3220. E. Not for credit for majors only. F, W.

3210 Acute Care Nursing I (6) Content and clinical laboratory experience related to the care of patients whose health problems require hospitalization. Physiological and behavioral deviations which underlie or are associated with more complex and critical illness are analyzed. Laboratory experiences provide opportunities for students to apply increasing knowledge and skill to care of acutely ill patients as well as to provision of continuity of care for those patients and their families. 5 hours, 3 labs. Prereq: 3010, 3110, 3410 or 4420. W.

3220 Acute Care Nursing II (10) Analysis of physiological and behavioral deviations which underlie or are associated with more complex and critical illness are analyzed. Laboratory experiences provide opportunities for students to apply increasing knowledge and skill to care of acutely ill patients as well as to provision of continuity of care for those patients and their families. 5 hours, 4 labs. Prereq: 3210. For nursing majors only. S.

3230 Acute Care Nursing Theory I (6) Nursing principles, theories, and concepts required to care for acutely ill, hospitalized adults and children. Prereq: 3210. For RN's only. S.

3240 Acute Care Nursing Theory II (6) Continuation of 2330 with emphasis on acute illness episodes that are life threatening. Prereq: 3230. For RN's only. S.

3260 Clinical Practice in Acute Care Nursing (3) Application of nursing theory, principles and concepts to care of hospitalized children and adults. 3 lab. Prereq: 3230. For RN's only.

3750 Health Promotion Through the Life Cycle (3) Phenomenology of wellness and illness and introduction to factors which promote wellness and prevent illness at all stages of the life cycle. Introduction to use of nursing process to facilitate wellness in clients of every age. Coreq: 3110 or permission of instructor.

3770 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. E.

3900 Clinical Practice Elective (1-3) Supervised clinical practicum in acute care settings; further development of clinical practice skills is emphasized. Prereq: 3220. S/N/C only. SU.

3910 Computers and Nursing Care (3) Basic concepts of computerized information processing with application to patient care, health care administration, nursing education, and research: 2 lec., 1 lab. Prereq: 16 hrs. of 3000-level nursing courses or consent of instructor.

4010 Physiological Principles Applied to Health Sciences (4) Application of selected physiological principles to the needs of patients in acute and chronic settings. Prereq: RN status or consent of instructor. Not for credit for students who have taken 3210 and/or 3220. E.

4110 Family Health Nursing (10) Nursing needs of families in health and illness. 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. Laboratory experiences provide opportunities for students to develop skills necessary to provide quality nursing care to families experiencing normal pregnancy and childbirth, newborn care, and for the health problems such as health diseases, complications of childbirth, congenital anomalies, and other high-risk birth, disturbed parent-child relationships, and gynecological disturbances. 5 hrs., 5 labs. Prereq: All 3000-level nursing courses or their equivalent. For nursing majors only. F, W.

4200-10 Integrated Psychosocial and Developmental Theories I, II (2,2) Examination of selected behavioral theories as applied to the nursing process. 4200 is a prerequisite to 4210. Open only to MSN candidates and those with special interest. Study is pursued independently under appropriate faculty guidance, supervision, and evaluation. Prereq: 3210. E. Not for credit for majors only.

4230 Psychosocial and Long-Term Nursing (10) Nurses' needs of patients whose 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. F, W.

4260 Community Mental Health Nursing (6) Theories and principles of mental health and illness, chronicity, aging, and rehabilitation and their application to nursing practice in a variety of settings. Prereq: All required 3000-level nursing courses. Prereq: All required 3000-level nursing courses. For MSN candidates without a BSN degree.

4280 Nursing the Child-Bearing Family (6) Families at all stages of the family life cycle are studied; selected topics to be a determined by faculty and students. Prereq: All required 3000-level nursing courses. 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 selected physiological and/or behavioral deviations. Specific topics to be determined by faculty and students. Prereq: 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.

4400 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. F, W.

4450 Nursing and Chronic Illness (4) Theories and principles of gerontology, chronicity and rehabilitation, implications for patient care and in the care of patients with chronic illness. Exploration of UTK's philosophy of professional nursing and of the conceptual framework of the modern health sciences to solution of nursing problems. Includes the analysis, planning, implementation, and evaluation of care provided to students who have taken 3210 and/or 3220. E. Not for credit for majors only. F.

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: 4110 or 4420. For nursing majors only. F, W.

4660 Professional Nursing Seminar (3) Critical examination of legislative, legal, ethical, social, and educational issues and trends which have immediate or long-term implications for professional nursing practice. Prereq: 10 hours of 4000-level nursing courses. For nursing majors only. S.

4780 Nursing Management (6) 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 labs. Prereq: 10 hours of 4000-level nursing courses. For nursing majors only. S.

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. E.

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. S.

GRADUATE Consult the Graduate Catalog for listing of graduate level courses.
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 T. M. Bante, M.A. Webster College; Captain M. K. Chaney, M.A. Webster College; Major R. A. Hooper, M.S.A. George Washington University.

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 (AFQT), 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 either 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 person 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 pilot and navigator positions.

THE COURSES

The General Military Course (GMC): This is a two-year course taken during the freshman and sophomore years with three hours 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 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 scientific 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 bases, 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 AFROTC 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 Aerospace Studies 3200 series (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 for 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 science and engineering careers. 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 AFB, AL 36112.

Independent Departments

PAY AND ENTITLEMENTS

All cadets enrolled in AFROTC are furnished texts and uniforms. Enrolees are required to deposit $75 as security to the University against loss or damage to the uniforms. 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 Officers receive a subsistence allowance of $100 per month during the academic year. In addition they are paid mileage to and from field training, plus pay commensurate 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 missions, 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 four hours of work credit in such studies as the American Security Forces and the Air Force can build. 1 hour and 1 hour lab (Leadership Laboratory).

2210-30-30 Air Force Aerospace Studies (2,2,2) Introduction to study of air power. Course is developed from a historical perspective starting before the Wright Brothers and continuing into the 1980s. 1 hr. and 1 lab (Leadership Laboratory).

2240 Field Training (Academic Program) (1-6) Role of United States military forces in a contemporary world, with particular attention to United States Air Force, its organization and mission, various component forces of U.S. military power, organization of America's defense structure, policies of major powers, and elements and processes in making of defense policy. Conducted at Field Training bases throughout the country. Approximately 60 class hours.

3210-20-30 Air Force Aerospace Studies (3,3,3) Air Force leadership at junior officer level, including theoretical, professional, and practical aspects, with attention to communicative skills. Military management functions, principles, and techniques are covered. 3 hours and 1 lab (Leadership Laboratory).

3340 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 a student to pass FAA private pilot's written examination. Thirty quarter hours of classroom instruction. Subject areas covered are: Pre-flight Facts-acquaints student 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. This course is open only to pilot candidates enrolled in the Air Force ROTC Professional Officer Course.

3350 Flight Instruction Ground School (Instrument) (3) Part of Air Force ROTC Flight Instruction Program. Covers Federal Aviation Agency (FAA) Instrument Flight Rules, Advanced Flight Procedures, Weather, and Instruments of Flight. Instrument flight training involves theoretical, professional, and practical aspects, with attention to instrument flying techniques and applications. Emphasizes safety in operation of small aircraft and provides necessary instruction for the FAA written examination for the instrument pilot's license. Prereq: 3240 or an FAA private license. This course is open only to pilot candidates enrolled in the Air Force ROTC Professional Officer Course.

3325 Commercial Pilot (3) Part of Air Force ROTC Flight Instruction Program. Covers Advanced Flight Procedures, Advanced Navigation and Radio; Commercial Pilot Federal Aviation Regulations and Exams; Aircraft, Drugs, and Flight Physiology; Weather, and Oxygen Systems. Course provides necessary instruction to take Federal Aviation Agency (FAA) written examination for Commercial Pilot's license. This course is open only to pilot candidates enrolled in the Air Force ROTC Professional Officer Course.

4210-20-30 Air Force Aerospace Studies (3,3,3) Role and function of 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 Aerospace Studies 3200 series (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.

Department of Military Science

Army ROTC Program

Professor of Military Science: Colonel Gilbert H. Fredrick (Head), M.A. Central Michigan University

Assistant Professor of Military Science: MAJ. R. Y. Buff, M.B.A. Winthrop College, CPT. C. E. Cochrane, M.S. University of Southern Califor-nia; CPT(A) S. L. Hill, M.S. University of Tennessee; MAJ. D. M. Lanigan, M.A. Arizona State; CPT. C. Pittman, M.A. Howard University; LTC T. P. Spaul, M.B.A. Webster College.

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 a sound basis for the students' 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 to serve the needs of 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.
BASIC ACADEMIC REQUIREMENTS FOR APPOINTMENT AS SECOND LIEUTENANT

Academic prerequisites for appointment as Second Lieutenant in the United States Army through the ROTC Program at The University of Tennessee, Knoxville, include the following requirements. The sequence and selection of courses not specified will be determined by the advisor in concert with the head of the Department of Military Science. In cases where a student is pursuing a discipline which is narrowly restricted (excluding Military Science Core Curriculum) with few elective options, any conflict in scheduling or course selection will be resolved in favor of academic degree requirements.

MILITARY SCIENCE CORE CURRICULUM

Basic Military Studies
- Hours Credit
  - MS 1110 Fundamentals of Military Organization...3
  - MS 1120 Historical Evolution of the US Army,...1
  - MS 1130 Historical Evolution of the US Army,...1
  - MS 1150 Historical Evolution of the US Army,...1
  - MS 2110 Leadership Development Techniques...3
  - MS 2120 Basic Officer Skills...3
  - MS 2120 The Art of War...1
Advanced Military Studies
- MS 3110-20-30 Advanced Leadership and Management (4,4,4) 12
- MS 4000 Army ROTC Advanced Summer Studies...6
- MS 4110 Military Professional Ethics and Leadership. LAB...4
- MS 4120 Introduction to Military Justice. LAB...4
- MS 4130 Officerhood. LAB...4
Substitution All substitutions must receive the prior approval of the Student Academic Advisor and the PMS. (a)MS 2000 Army ROTC Basic Summer Studies may be taken for 6 credits in lieu of MS 1110, 2110 and 2120. (b)History 4370, 4380 may be taken in lieu of MS 1120, 1130 and 2130.

ENROLLMENT AND CONTINUANCE REQUIREMENT

The general requirements for enrollment and continuance in the Army ROTC program are:

(1) Basic Military Studies
- a. Be a citizen of the United States.
- b. Be physically qualified.
- c. Freshman and Sophomore standing. Student with higher standing requires consent of instructor.

(2) Advanced Military Studies Cadets applying in the Army ROTC program who seek a Commission must:
- a. Have successfully completed MS 1110, 2110, 2120 or have accomplished one of the following: Prior Military Service, ROTC Basic Summer Studies, 3 Year High School ROTC Basic Course.
- 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. Maintain military screening and physical requirements.
- e. Maintain a 2.0 G.P.A.
- f. Maintain B average in Military Science Courses as a scholarship student.

(3) ROTC Scholarship Students enrolling in the ROTC program are furnished texts by the Army through the Military 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 for Advanced Summer Studies, $490 for Basic Summer Studies, plus meals and clothing are provided.

PLACEMENT CREDIT FOR MILITARY TRAINING

On the basis of previous honorable active military service in any branch of the Armed Services, or participation in a Junior ROTC Program at a Secondary School, a student may request exemption from portions of the Basic Course. Exemption allowed will be determined by the Professor of Military Science.

SPECIAL PROGRAMS

(1) 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 subsidy, 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 school counselor in August or September 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 cadets.

(2) EARLY COMMISSIONING PROGRAM

By utilization of placement credit for the Basic Military Studies, many cadets enter Advanced Military Studies in either their freshman or sophomore year. The "ECP" enables cadets who complete the ROTC program to be commissioned in a reserve component prior to awarding of a baccalaureate degree. These newly commissioned officers begin their military service in the Army Reserve or National Guard while still enrolled in college Pursuing a four year degree.

(3) SIMULTANEOUS MEMBERSHIP PROGRAM

The "SMP" option combines the Army ROTC living 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. SMP cadets participate with the reserve forces is one weekend per month and two weeks each summer.

PAY AND ENTITLEMENTS

All students enrolled in the Army ROTC program are furnished texts by the Army through the Military 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 for Advanced Summer Studies, $490 for Basic Summer Studies, plus meals and clothing are provided.

BRANCH SELECTION

The Army ROTC Program is designed to qualify the cadet for appointment as an officer in the United States Army. Selection to the various branches of the Army is based upon:

1. The personal interests of the cadet;
2. The major course of study;
3. Academic accomplishment;
4. Leadership potential;
5. The needs of the Service.

Under this system a cadet may be commissioned in any branch 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 specialized military training which will qualify him or her for the branch to which he or she is assigned.

EXTRA CURRICULAR ACTIVITIES

Numerous military-related activities are available to cadets throughout the school year. These include the Tennessee Rangers, Rifle Company, UT Color Guard and Sponsor Corps. These organizations provide both student to student contact and a valuable opportunity to acquire military skills. Additionally, each term, a number of Field Training Exercises are conducted allowing such military skills as Small Unit Tactics.

Curriculum

Military Science Studies (628)

1110 Fundamentals of Military Organization (3) The formation and functioning of the American Defense Establishment, customs and traditions of the Army, introduction to the principles of war and current military threats, the role of the United States in the world, the establishment and development of the U.S. Army, and our national resources. Concentrated study of the techniques of military planning, elements of successful leadership styles, the development of personal and interpersonal skills, the management of organizations and factors affecting human behavior.

1120 Historical Evolution of the U.S. Army, 1775-1865 (5) Historical survey of the organization and accomplishments of the U.S. Army. Presents the history of the Army with attention to both peace time and war time achievements as well as discussion of applications and violations of the principles of war. Prereq: 1110, F, W, S.

1130 Historical Evolution of the U.S. Army, 1865-Pre 1941 (3) Historical survey of the organization and accomplishments of the U.S. Army. Presents the history of the Army with attention to both peace time and the role of the United States in global affairs. Prereq: 1110, F, W, S.

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, elements of successful leadership styles, the development of personal and interpersonal skills, the management of organizations and factors affecting human behavior.

2110 Leadership and Development Techniques (3) A survey of leadership skills and principles with particular attention to communications skills and factors affecting human behavior. Development of leadership qualities through practical exercises requir-
ing both individual and group participation. Prerequisite: 1110. Freshman or sophomore standing. Student with higher standing requires consent of instructor. E.

2120 Basic Officer Skills (3) Emphasis on small unit operating techniques to include familiarization with military equipment, land navigation and first aid. Prerequisite: 1110. Freshman or sophomore standing. Student with higher standing requires consent of instructor. E.

2130 The Art of War (1) A survey of military strategy and principles of war based upon the works of Clausewitz, Sun Tzu, Hart, and Summers. Prerequisite: 1110. F, W, S.

3110-20-30 Advanced Leadership and Management (4,4,4) Applied leadership to include organization and operation of military units, electronics communication systems and radio/telephone procedures, land navigation, small unit leadership, and tactical concepts of offensive and defensive operations. A quarterly field trip reinforces classroom instruction through practical application. Leadership lab: Tactical and administrative roles in the military unit, physical readiness training, and drill and ceremony. 3110-F, W; 3120-W; 3130-S.

4000 Army ROTC Advanced Summer Studies (6) A six-week field study program conducted at an Army installation in the continental United States. 44 hours of instruction are scheduled each week. A prerequisite to commissioning. Normally scheduled upon completion of 3130. Instruction presented by ROTC faculty from colleges and universities nationwide. Program of study is an extension of leadership and management curricula with emphasis on practical application. Prerequisite: 3130. SU.

4110 Military Professional Ethics and Leadership (4) Analysis of the military professions characteristics, roles, responsibilities, and ethics; staff operations; military briefings; logistics, personnel evaluation and senior/subordinate relationships are also addressed through practical application. Prerequisite: 4000 or consent of instructor. F.

4120 Introduction to Military Justice (4) Basic tenets of military law and justice to include the Manual for Courts-Martial, the Uniformed Code of Military Justice, disciplinary measures, search and seizure, investigations, administrative proceedings, the Law of Land Warfare, interviews and interrogations, and legal assistance. Leadership Lab: Planning, execution and supervision are stressed through practical application. Prerequisite: 4110 or consent of instructor. W.

4130 Officership (4) Drafting and reviewing military correspondence, training management, post and installation support, and world power balance are addressed. Leadership Lab: Personnel evaluation, supervision and staff operations are stressed through practical exercise. Prerequisite: 4120 or consent of instructor. S.
Public Service and Continuing Education

R. S. Hutchison, Vice President for Public Service and Continuing Education

Institute for Public Service

Executive Director:
T. B. Ballard, B.S. Tennessee.

Business Manager:
G. W. Baskette

Executive Assistant:
C. E. Shoopman, Jr., B.A. Vanderbilt

Business Assistants:
M. M. Hoes; P. K. Peterson, B.A. Carson Newman

Computer Programmer Analyst:
L. D. Brothers, B.S. Tennessee

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 provides: (1) a system-wide focal point for public services; (2) a means to coordinate the various system-level public service activities; and (3) an organizational base for communication and program development that relates to both outside service clientele and the University system.

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. Wormley, B.S. Cumberland.

Assistant Director for Administration:
T. D. McAnulty, M.A. Austin Peay State.

Legal Specialists:
P. C. Davis, J.D. YMCA Law School; R. E. Fults, J.D. Tennessee; J. J. King, J.D. Tennessee; M. A. Murphy, J.D. Tennessee.

Financial Specialists:
R. L. Atkins, B.S. Bravel; M. D. Patterson, B.S. Tennessee.

Intergovernmental Consultant:
G. A. Fouts, B.S. Georgia.

Senior Field Advisors:

County Field Advisor:
W. M. Malone, B.S. Lambuth.

Special Projects Coordinator:
M. J. Frank, B.A. Tennessee.

Management Systems Specialist:
R. H. Villier, B.S. East Tennessee State.

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 county government, publications, educational conferences and attendance thereat, and to furnish technical, consultative, and field services to counties of the state in problems relating to fiscal administration, accounting, tax assessment and collection, law enforcement, improvements, and public works, and in any and all matters relating to county government. This program shall be carried on in cooperation with and with the advice of counties in the state acting through the Tennessee Counties Association and its Board of Directors, which is recognized as their official agency or instrumentality."

The Service is headquartered in Nashville, with regional offices in Cookeville, Jackson, Johnson City, Martin and Knoxville.

Municipal Technical Advisory Service

Executive Director:
C. L. Overman, M.C.M. East Tennessee State

Assistant Director:
W. K. Joines, B.S. Tennessee Technological.

Specialist Consultants:
S. D. Hemsley, J.D. Tennessee (Municipal Law); D. W. Huffner, J.D. Tennessee (Intergovernmental Relations); P. S. Jones, M.A. Bowling Green; J. Kerah, 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); D. W. Owby, J.D. Tennessee (Ordinance Codification); M. T. Pente-cost, B.S. Murray State (Finance and Accounting); E. Puett, J.D. Tennessee (Municipal Law); J. E. Robinson, M.P.A. Tennessee.

Municipal (District) Consultants:
Information Resource Specialist:
C. C. Hewlett, M.S. Tennessee.

Utility Management Consultants:
A. W. Jordan; E. C. Archer, M.S. Mississippi State; S. L. Rollins, M.S. North Carolina.

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, land 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:
T. C. Parsons, M.S. Tennessee, P.E., CPA.

Administrative Assistant:
J. H. Lyle, M.S. Tennessee.

Senior Field Engineers:

Management Consultant:
J. E. Ross, M.B.A. Tennessee Technological, P.E.

Research Associate:
A. S. Penwell, 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 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 Carthage, Jackson, Johnson City, Martin and Knoxville.

Center for Government Training
Executive Director:
G. M. Mabrey, III, M.C.M. East Tennessee State.

Assistant Directors:
G. T. Himes, Jr., B.S. Belmont; D. M. Roberts, M.A. Alabama.

Regional Director:
D. R. Waynick, B.S. Lambuth

Senior Regional Manager:
J. W. Fort, M.A. Austin Peay State

Regional Manager:
C. E. Williams, M.P.H. Tennessee.

Coordinator:
M. S. Rigsbee, B.S. Christian Brothers.

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:
T. J. Keith, M.S.N. Vanderbilt; V. S. Rice, Ph.D. 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 1973. 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, 149-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.

Division of 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 (establishing) policy that will extend educational opportunities, including attainment of college degrees, to 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 92 of this catalog.

Center for Extended Learning
Director:

Associate Directors:

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.

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. Phone: (615) 974-5135.
Radio Services
Director:
R. A. Shirley, M.A. Tennessee.

Associate Directors:
J. A. Chasteen; S. D. Williamson, Jr., M.S. Tennessee;
N. L. Dryer, B.M. Indiana.

Assistant Director:
J. C. Adkins, M.S. Tennessee.

Staff:
D. Burris; P. Doyle, M.S. Tennessee; A. R.
Ellstrom, M.Ed. Indiana; R. J. England; M. Kiser,
B.S. Tennessee; D. T. Berry, M. M. Michigan.

Radio Services provides local, regional,
and statewide services in radio broadcasting
and audio production. It directs the operation
of WUOT, the University's 100,000-watt
stereo 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 Net-
work.
The department has a technical service
which includes high-speed duplication of
reel-to-reel or cassette audio tapes for Uni-
v ersity departments, recording conferences
and workshops, audio production, and con-
sulting work in audio or public radio
technology.

Television Services
Director: R. A. Shirley, M.A. Tennessee.

Assistant Director:
D. L. Bower

Chief Engineer:
A. W. Pearson

Assistant Chief Broadcasting Engineer:
M. L. Battershell

Media Production Assistant:
S. C. Moore

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; 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 1,483,318 books, 1,539,197 microforms, 6,238 audio tapes, 130,635 slides, 1,716 video tapes, more than 2.5 million manuscripts, and various historical ephemera, maps, and oral history tapes. More than 16,598 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 D. Hoskins Library at 1401 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, microforms, computerized information services, and Special Collections, the last a repository of local and regional source materials.

The John C. Hodges Undergraduate Library, now under extensive alteration and expansion, will become the main library when an addition of 250,000 square feet is completed, perhaps by 1987. Library services for the undergraduate are continuing in the heart of campus: Reserve, non-print, and the film office are located in Dunford Hall; UGL administration, circulation, periodicals, reference and systems are in the Humanities and Social Sciences Building.

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.

Located at SMC are an IBM 3081-D, an IBM 4341/2, a DECsystem-10 with dual KL10 processors in a symmetrical multiprocessor (SMP) configuration, a DEC VAX-11/785, and a DEC PDP 11/55 which supports WIDJET job submission and retrieval system. The installation of a second DEC VAX-11/785 is planned during 1985. A CalComp 1051 plotter is used to produce graphics output from jobs run on the IBM and DEC computers.

The IBM 3081-D has 16 million bytes of memory, the IBM 4341/2 has 8 million bytes of memory, and the DEC system-10 has 1.25 million words of memory. The IBM 3081-D runs under MVS with JES2. The DECsystem-10 runs under TOPS-10 and the VAX-11/785 runs VMS. Time-sharing features, in addition to the DECsystem-10 and the VAX-11/785, include VM/CMS on the IBM 4341/2 and Coursewriter III on the IBM 3081-D.

Software includes most of the commonly used compilers and interpreters, as well as a large number of programs for statistical, mathematical, engineering, operations research, and graphics applications.

Located in Andy Holt Tower is an IBM 360/40, operating under DOS with POWER II, which is used exclusively for administrative work. Data entry services are provided with two Nixdorf 600/55 key-to-disk systems which are also located in Andy Holt Tower. An IBM 6670 laser printer is used to produce high quality printed output.

UTCC maintains eight remote job entry stations for batch work and fifteen sites for interactive computing work on the Knoxville campus and supplies computing services to the other campuses in the UT System through remote job entry facilities.

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.

UTCC publishes the IBM User's Guide, which describes the use of the IBM computers, and the DECsystem-10 User's Guide, which describes the use of the DEC system-10. Both guides are available at the UT Book & Supply Store. A monthly UTCC Newsletter announces systems, equipment, and procedural changes and contains other items of interest to users. Program write-ups and special user's guides are also available.

UTCC periodically offers intensive training seminars on the utilization of the IBM and DEC 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.

Forms to request computing services are available from the receptionist, 200 Stokely Management Center. All users of UTCC facilities are assigned a consultant for assistance in the effective use of computing resources.

Through the UTCC computers, the University of Tennessee is affiliated with EDUNET and BITNET, two communication networks of colleges and universities. EDUNET is an international computing network, primarily for researchers in higher education, which permits users to open accounts and use computing facilities at any of nineteen universities which supply software to the network. Available resources include a number of computer assisted instruction (CAI) packages, electronic mail services, and special purpose programs in many fields of study. BITNET, a network of over 200 computers located at educational and research institutions throughout the United States, Canada, and Europe, allows members to send electronic messages or files to one another quickly and cost effectively.
<table>
<thead>
<tr>
<th>Subject</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Advising</td>
<td>18</td>
</tr>
<tr>
<td>Academic Calendar</td>
<td>4</td>
</tr>
<tr>
<td>Academic Continuation</td>
<td>20</td>
</tr>
<tr>
<td>Academic Regulations</td>
<td>11, 16, 20</td>
</tr>
<tr>
<td>Accelerated Program</td>
<td>22</td>
</tr>
<tr>
<td>Accounting</td>
<td>77, 80, 82</td>
</tr>
<tr>
<td>Accreditation</td>
<td>10, 56, 75, 87, 94, 117, 135, 147, 211</td>
</tr>
<tr>
<td>Administration</td>
<td>7</td>
</tr>
<tr>
<td>Agriculture</td>
<td>63</td>
</tr>
<tr>
<td>Animal Science</td>
<td>59, 65</td>
</tr>
<tr>
<td>College of</td>
<td>56</td>
</tr>
<tr>
<td>Cooperative Program</td>
<td>63</td>
</tr>
<tr>
<td>Economics and Rural Sociology</td>
<td>57, 64</td>
</tr>
<tr>
<td>Education</td>
<td>58, 113</td>
</tr>
<tr>
<td>Engineering</td>
<td>68, 65, 119</td>
</tr>
<tr>
<td>Experiment Station</td>
<td>55</td>
</tr>
<tr>
<td>Extension Education</td>
<td>59, 65</td>
</tr>
<tr>
<td>Extension Service</td>
<td>56</td>
</tr>
<tr>
<td>Food Technology and Science</td>
<td>61, 67</td>
</tr>
<tr>
<td>Forestry, Wildlife, and Fisheries</td>
<td>61, 67</td>
</tr>
<tr>
<td>Graduate</td>
<td>56</td>
</tr>
<tr>
<td>Institute of</td>
<td>55</td>
</tr>
<tr>
<td>Interdepartmental Courses</td>
<td>64</td>
</tr>
<tr>
<td>Mechanization</td>
<td>59</td>
</tr>
<tr>
<td>Ornamental Horticulture and Landscape</td>
<td>62, 69</td>
</tr>
<tr>
<td>Plant and Soil Science</td>
<td>63, 69</td>
</tr>
<tr>
<td>Pre-Veterinary Medicine</td>
<td>60</td>
</tr>
<tr>
<td>Rural Sociology</td>
<td>64</td>
</tr>
<tr>
<td>Short Courses</td>
<td>64</td>
</tr>
<tr>
<td>Veterinary Medicine</td>
<td>51</td>
</tr>
<tr>
<td>(See Graduate Catalog)</td>
<td></td>
</tr>
<tr>
<td>Wildlife and Fisheries Science</td>
<td>62, 68</td>
</tr>
<tr>
<td>Air Force Aerospace Studies</td>
<td>214</td>
</tr>
<tr>
<td>Advanced</td>
<td>22</td>
</tr>
<tr>
<td>American History Requirement</td>
<td>14</td>
</tr>
<tr>
<td>American Studies</td>
<td>174</td>
</tr>
<tr>
<td>Ancient Mediterranean Civilizations</td>
<td>176</td>
</tr>
<tr>
<td>Animal Science</td>
<td>59, 65</td>
</tr>
<tr>
<td>Anthropology</td>
<td>161</td>
</tr>
<tr>
<td>Application Directory</td>
<td>40</td>
</tr>
<tr>
<td>Aquatic Center</td>
<td>38</td>
</tr>
<tr>
<td>Arabic</td>
<td>174</td>
</tr>
<tr>
<td>Architecture:</td>
<td></td>
</tr>
<tr>
<td>School of,</td>
<td></td>
</tr>
<tr>
<td>Second Baccalaureate Degree</td>
<td>73</td>
</tr>
<tr>
<td>Army</td>
<td>22, 215</td>
</tr>
<tr>
<td>Arrowmont School of Arts and Crafts</td>
<td>37, 165</td>
</tr>
<tr>
<td>Art:</td>
<td></td>
</tr>
<tr>
<td>College Artists Program</td>
<td>158</td>
</tr>
<tr>
<td>Curriculum, 154, 162</td>
<td></td>
</tr>
<tr>
<td>Education, 98, 104</td>
<td></td>
</tr>
<tr>
<td>Exhibitions, 37</td>
<td></td>
</tr>
<tr>
<td>Asian Studies</td>
<td>174</td>
</tr>
<tr>
<td>Astronomy</td>
<td>197</td>
</tr>
<tr>
<td>Athletics</td>
<td>38</td>
</tr>
<tr>
<td>Audiology and Speech Pathology</td>
<td>166</td>
</tr>
<tr>
<td>Auditors</td>
<td>20, 24</td>
</tr>
<tr>
<td>Automobile Regulations</td>
<td>37</td>
</tr>
<tr>
<td>Average Required</td>
<td>20</td>
</tr>
<tr>
<td>Awards</td>
<td>31</td>
</tr>
<tr>
<td>Bachelor of Arts</td>
<td>21, 146</td>
</tr>
<tr>
<td>Bachelor of Fine Arts</td>
<td>147, 154</td>
</tr>
<tr>
<td>Bachelor of Music</td>
<td>147, 155</td>
</tr>
<tr>
<td>Bachelor of Science in Chemistry</td>
<td>147, 158</td>
</tr>
<tr>
<td>Bachelor of Science in Social Work</td>
<td>147, 158</td>
</tr>
<tr>
<td>Bachelor's Degree, Requirements</td>
<td>21, 56, 72, 77, 88, 96, 117, 138, 147, 211</td>
</tr>
<tr>
<td>Bands, University</td>
<td>38</td>
</tr>
<tr>
<td>Banking</td>
<td>79</td>
</tr>
<tr>
<td>Basic Skills, Liberal Arts</td>
<td>147</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>167</td>
</tr>
<tr>
<td>Biology</td>
<td>167</td>
</tr>
<tr>
<td>Biomedical Engineering</td>
<td>120</td>
</tr>
<tr>
<td>Biomedical Sciences</td>
<td>51</td>
</tr>
<tr>
<td>Black Cultural Center</td>
<td>35</td>
</tr>
<tr>
<td>Black Studies</td>
<td>173</td>
</tr>
<tr>
<td>Board of Trustees</td>
<td>7</td>
</tr>
<tr>
<td>Botany</td>
<td>168</td>
</tr>
<tr>
<td>Broadcasting</td>
<td>88, 90</td>
</tr>
<tr>
<td>Business Administration</td>
<td></td>
</tr>
<tr>
<td>Admission</td>
<td>15, 77</td>
</tr>
<tr>
<td>Accounting</td>
<td>77, 80, 82</td>
</tr>
<tr>
<td>Banking</td>
<td>78</td>
</tr>
<tr>
<td>Business Administration</td>
<td>86</td>
</tr>
<tr>
<td>Business Law</td>
<td>82</td>
</tr>
<tr>
<td>Center for Business and Economic Research</td>
<td>76, 86</td>
</tr>
<tr>
<td>College of</td>
<td>78</td>
</tr>
<tr>
<td>Cooperative Program</td>
<td>77</td>
</tr>
<tr>
<td>Economics</td>
<td>78, 82</td>
</tr>
<tr>
<td>Education</td>
<td>77, 103</td>
</tr>
<tr>
<td>Finance</td>
<td>78, 83</td>
</tr>
<tr>
<td>General</td>
<td>78, 81</td>
</tr>
<tr>
<td>Graduate</td>
<td>81</td>
</tr>
<tr>
<td>Insurance</td>
<td>78</td>
</tr>
<tr>
<td>Management</td>
<td>79, 81, 84</td>
</tr>
<tr>
<td>Management Development Programs</td>
<td>76</td>
</tr>
<tr>
<td>Marketing</td>
<td>79, 85</td>
</tr>
<tr>
<td>Public Administration</td>
<td>79</td>
</tr>
<tr>
<td>Real Estate and Urban Development</td>
<td>78</td>
</tr>
<tr>
<td>Statistics</td>
<td>80, 81, 85</td>
</tr>
<tr>
<td>Transportation</td>
<td>80, 85</td>
</tr>
<tr>
<td>Transportation and Logistics</td>
<td>80</td>
</tr>
<tr>
<td>Business Law</td>
<td>82</td>
</tr>
<tr>
<td>Calendar</td>
<td>4</td>
</tr>
<tr>
<td>Campus Map</td>
<td>8-9</td>
</tr>
<tr>
<td>Center for Business and Economic Research</td>
<td>76, 86</td>
</tr>
<tr>
<td>Center for Extended Learning</td>
<td>219</td>
</tr>
<tr>
<td>Center for Government Training</td>
<td>219</td>
</tr>
<tr>
<td>Center for the Health Sciences</td>
<td>11, 40</td>
</tr>
<tr>
<td>Center for Industrial Services</td>
<td>219</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>120, 122</td>
</tr>
<tr>
<td>Chemistry</td>
<td></td>
</tr>
<tr>
<td>Curriculum, 158, 169</td>
<td></td>
</tr>
<tr>
<td>Cooperative Program</td>
<td>158</td>
</tr>
<tr>
<td>Child and Family Studies</td>
<td>137, 142</td>
</tr>
<tr>
<td>Chinese (Asian Studies)</td>
<td>174</td>
</tr>
<tr>
<td>Choral Groups</td>
<td>38</td>
</tr>
<tr>
<td>Church Centers</td>
<td>36</td>
</tr>
<tr>
<td>Center for the Health Sciences</td>
<td>11, 40</td>
</tr>
<tr>
<td>College Arts Program</td>
<td>146, 151</td>
</tr>
<tr>
<td>College Artists Program</td>
<td>155</td>
</tr>
<tr>
<td>Comparative and Experimental Medicine</td>
<td>53</td>
</tr>
<tr>
<td>Comparative Literature</td>
<td>176</td>
</tr>
<tr>
<td>Computer Science</td>
<td>172</td>
</tr>
<tr>
<td>Computing Center</td>
<td>222</td>
</tr>
<tr>
<td>Concentrations</td>
<td>44-50</td>
</tr>
<tr>
<td>Conference</td>
<td>92</td>
</tr>
<tr>
<td>Contact List for Prospective and New Students</td>
<td>40</td>
</tr>
<tr>
<td>Continuing Education</td>
<td>92</td>
</tr>
<tr>
<td>Divison of</td>
<td></td>
</tr>
<tr>
<td>Cooperative Programs</td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td>83</td>
</tr>
<tr>
<td>Business Administration</td>
<td>77</td>
</tr>
<tr>
<td>Chemistry</td>
<td>158</td>
</tr>
<tr>
<td>Communications</td>
<td>219</td>
</tr>
<tr>
<td>Cooperative Programs</td>
<td></td>
</tr>
<tr>
<td>College Scholars Program</td>
<td>146, 151</td>
</tr>
<tr>
<td>Commencement Dates</td>
<td>4</td>
</tr>
<tr>
<td>Communications</td>
<td></td>
</tr>
<tr>
<td>Admission</td>
<td>15, 87</td>
</tr>
<tr>
<td>Advertising</td>
<td>88, 90</td>
</tr>
<tr>
<td>Broadcasting</td>
<td>88, 90</td>
</tr>
<tr>
<td>College of</td>
<td>87</td>
</tr>
<tr>
<td>Cooperative</td>
<td>88</td>
</tr>
<tr>
<td>Graduate, (See Graduate Catalog)</td>
<td>89, 90</td>
</tr>
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<td>Comparative and Experimental Medicine</td>
<td>53</td>
</tr>
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<td>Comparative Literature</td>
<td>176</td>
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<td>146, 151</td>
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<td>53</td>
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<td>Comparative Literature</td>
<td>176</td>
</tr>
<tr>
<td>Communications</td>
<td></td>
</tr>
</tbody>
</table>
Dietetics, 135, 139
Disabled and Elderly Persons, 35, 37, 93
Distributional Requirements in Agribusiness, 119
Dissertation, 23, 95 (See Graduate Catalogue)
Doctor of Jurisprudence Degree, 23, 51 (See College of Law Bulletin)
Doctor of Philosophy Degree, 23, 51 (See Faculty Advising, 18, 93, 160
Dormitories, 25
Dropping Courses, 19, 24
Eco, 79
Economics, 179
Agricultural, 57, 64
Business, 78, 82
Education:
Admission and Supervision, 27
Admission to Teacher Education, 94
Agricultural, 58, 113
Art, 98, 104
Business, 77, 103
Curriculum and Instruction, 105
Distributive, 103, 114
Elementary, 96
High School Subjects, Credit, 12, 14-16
Economics, 179
Ecology, 186
Education and Supervision, 107
Graduation Requirements, 151
Engineering, 117
Examinations, 124
Experiment Station, 117
Graduate Program, 117
Graphics, 122
Industrial, 121, 124
Mechanical, 121, 131
Metallurgical, 121, 122, 124
Nuclear, 122, 133
Physics, 121, 128
Polymer, 122, 124
Science, 121
Science and Mathematics, 128, 129
English, 12, 42, 179
Entomology & Plant Pathology, 60, 66
Environment Center, 53
Environmental Engineering, 126
Evening School, 92
Examinations: Admission, 12
Advanced Placement, 12
Proficiency, 12, 22
Experiments, 23
Experiment Stations: Agricultural, 117
Engineering, 117
Extension Service, Agricultural, 56
Extracurricular Activities, 37
Faculty, 10
Faculty Advising, 18, 93, 160
Failing Grades, 16
Family Educational Rights and Privacy Act, 14
Family Housing, 25
Family Studies, Child and, 137, 142
Federal and State Laws, 14
Fees and Expenses, 23
Finance, 78, 83
Financial Aid, 25, 93
Fine Arts, 147, 154
Food and Lodging Administration, Tourism, 140
Food Science, Nutrition and, 135, 139, 142
Food Service, 25
Food Technology and Science, 61, 67
Foreign Study Courses, 160
Forestry, 61, 67
Fraternities, Honorary and Professional, 33
French, 203
General Business, 78, 81
Geography, 182
Geological Sciences, 183
Geology, 183
German, 185
Germanic and Slavic Languages, 184
Government Training, Center for, 219
Grades, 16, 20
Graduate School: (See the Graduate Catalogue)
Biomedical Sciences, 51
Business Administration, 81
Comparative and Experimental Medicine, 53
Degree Available, 23, 52
Energy, Environment, and Resources Center, 53
Engineering, 117
Graduate School, 51
Home Economics, 142
Law, 51, 159
Library and Information Science, 53
Life Sciences, 53
Planning, 53, 159
Social Work, 54
Space Institute, 54
Transportation Center, 54
Veterinary Medicine, 51
Water Resources Research Center, 54
Graphics Engineering, 122
Greek, 171
Guidance, 35, 36, 93
Handicapped Students, 35, 37, 93
Health Education, 99, 108, 111
Health, Physical Education, and Recreation, School of, 108
Health Professions, Preparation for, 152
Health, Public, 102, 111
Health, School of, 103
Health Service, 36
Health, Student, 36
Hearing and Speech Services, 37
Hebrew, 175
High School Subjects, Credit, 12, 14-16
Higher Education, 107
Historical Background, University, 10
History, 186
Home Economics
Admission, 16, 136
Child and Family Studies, 137, 142
Coordinated Undergraduate Program in Dietetics, 135, 139
Education, 114, 136, 139, 144
Extension Education, 136
Graduate Studies, 142
Interior Design, 140, 144
Nutrition and Food Sciences, 135, 139, 142
Textiles, Merchandising and Design, 135, 140, 144
Tourism, Food, and Lodging, 140
Vocational Certification, 136
Honorary Fraternities, 33
Honors and Awards, 31
Honors Categories for Graduation, 22
Honor Courses, 20
Honors Program, 188
Horticulture, 62, 69
Hospital: Memorial Research Center, 36
Student Health Service, 36
Hour, Quarter, 16
Housing, 25
Human Services, 189
Identification Card, 24
Incomplete, 17
Independent Departments, 214
Independent Study, 180
Individualized Program, Graduate, 151
Industrial Education, 104, 114
Industrial Engineering, 121, 130
Industrial Services, Center for, 219
Institute of Agriculture, 55
Institute for Public Service, 218
Insurance, 78
Insurance, Student, 24
Intercollegiate Athletics for Women, 36
Intercollegiate Sports, 38
Interior Design and Housing, 140, 144
Insurance Claims, 25
Internal Medicine, 53
International Education, Division of, 36
International Student Affairs, 35
International Students, Admission, 12
Intramurals, 38
Italian, 204
Japanese (Asian Studies), 175
Journalism, 89, 90
Landscape Design, 62, 69
Late Registration, 19, 23
Latin, 171
Latin American Studies, 176
Latin American Studies, 176
Law:
Admission, 51, 159 (See College of Law Bulletin)
Learning Research Center, 39
Liberal Arts, College of: Advising Center, 150
Anthropology, 161
Art, 154, 162
Audiology and Speech Pathology, 166
Basic Skills, 147
Biochemistry, 167
Biology, 167
Botany, 168
Chemistry, 169
Classics, 171
College Artists Program, 155
College Scholars Program, 146
Computer Science, 172
Cultural Studies, 173
Distribution Requirements, 148
Ecology, 179
Economics, 179
English, 179
Geography, 182
Geological Sciences, 183
Germanic and Slavic Languages, 184
Health Professions, Preparations for, 152
140, 144
Theatre, Speech and, 207
Theatres, University, 37, 160
Theology, 159
Title IX, 14
Tourism, Food and Lodging Administration, 140
Transfer Students, 12
Transportation, 60, 85
Transportation and Logistics, 80
Transportation Center, 54
Trustees, 7
Tuition, 23
Undergraduate Degrees, 23
Undergraduate Retention Standards, 20
University Computing Center, 222
University Library, 221
University Studies, 209
Urban Studies, 178
Vehicle Operation and Parking, 37
Veterinary Medicine, 51
Visiting Students, 13
Vocational Certification, Home Economics, 136
Vocational-Technical Education, 103, 113
Water Resources Research Center, 54
Wildlife and Fisheries Science, 62, 68
Withdrawals, 19, 24
Women's Athletics Intercollegiate, 36
Women's Center, 36
Women's Studies, 178
Work Study, 27
Workshops and Off-Campus Programs, 93
Writing Deficiency, 17
Writing Laboratory, 37
WUOT, 38
Zoology, 209