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 Affirmative Action Director, 403-C Andy Holt Tower, 974-2498. Charges of violation of the above policy should be directed to the Office of the Affirmative Action Director.
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## THE UNIVERSITY OF TENNESSEE BOARD OF TRUSTEES

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

<table>
<thead>
<tr>
<th>From Congressional Districts</th>
<th>District</th>
<th>Service Begins</th>
<th>Term Expires</th>
</tr>
</thead>
<tbody>
<tr>
<td>R.B. Hailey, Sevierville</td>
<td>First</td>
<td>1984</td>
<td>June 1, 1993</td>
</tr>
<tr>
<td>William B. Sansom, Knoxville</td>
<td>Second</td>
<td>1986</td>
<td>June 1, 1995</td>
</tr>
<tr>
<td>James L. Moore, Jr., Chattanooga</td>
<td>Third</td>
<td>1988</td>
<td>June 1, 1994</td>
</tr>
<tr>
<td>William M. Johnson, Sparta</td>
<td>Fourth</td>
<td>1975</td>
<td>June 1, 1991</td>
</tr>
<tr>
<td>Marcia Austin Echols, Nashville</td>
<td>Fifth</td>
<td>1979</td>
<td>June 1, 1991</td>
</tr>
<tr>
<td>Ben S. Kimbrough, Clarksville</td>
<td>Sixth</td>
<td>1980</td>
<td>June 1, 1990</td>
</tr>
<tr>
<td>Amon Carter Evans, Columbia</td>
<td>Sixth</td>
<td>1984</td>
<td>June 1, 1993</td>
</tr>
<tr>
<td>Jack V. Dalton, Parsons</td>
<td>Seventh</td>
<td>1988</td>
<td>June 1, 1994</td>
</tr>
<tr>
<td>Tom Elam, Union City</td>
<td>Eighth</td>
<td>1956</td>
<td>June 1, 1990</td>
</tr>
<tr>
<td>Ronald Terry, Memphis</td>
<td>Ninth</td>
<td>1986</td>
<td>June 1, 1995</td>
</tr>
</tbody>
</table>

| From Anderson, Bedford, Coffee, Franklin, Lincoln, Moore, and Warren Counties | | |
| J. Steven Ennis | 1988 | June 1, 1994 |

| From Davidson County | | |
| Michael Graves | 1984 | June 1, 1993 |

| From Hamilton County | | |
| Paul J. Kinser | 1969 | June 1, 1998 |

| From Knox County | | |
| Ann Baker Furrow | 1971 | June 1, 1989 |
| James A. Haslam, II | 1980 | 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 | | |
| Bentley T. Beard | 1988 | July 1, 1989 |

## Officers of the Board
- **Ned McWherter, Chairman**
- William M. Johnson, 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, Lamar Alexander, B.A., J.D.
Executive Vice President and Vice President for Development, Joseph E. Johnson, A.B., A.M., Ed.D.
Senior Vice President, Homer S. Fisher, B.S., M.B.A.
Vice President for Assessment, Michael T. Nettles, B.A., M.S., M.A., Ph.D.
Vice President for Agriculture, D. M. Gosssett, B.S., 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, Unfilled
Vice President for the Space Institute, Unfilled

General Counsel, Beauchamp E. Brogan, B.S., J.D.
Treasurer, A. David Martin, B.S., M.B.A., C.P.A.

Emeriti Administrators:
- Emeritus President, Edward J. Boling, B.S., M.S., LL.D., Ed. 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.
ACADEMIC CALENDAR FOR 1988-89

SUMMER TERM 1989

- May 31 Registration
- June 1 Classes Begin
- July 4 INDEPENDENCE DAY HOLIDAY
- July 5 Classes End, First Session
- July 6 Classes Begin, Second Session
- August 9 Classes End
- August 11 Commencement

FALL SEMESTER, 1989

- August 23 Classes Begin
- September 4 LABOR DAY HOLIDAY
- November 23-24 THANKSGIVING HOLIDAYS
- December 5 Classes End
- December 6-7 Study Period
- December 8-13 Final Examinations
- December 15 Commencement

SPRING SEMESTER, 1990

- January 10 Classes Begin
- January 15 MARTIN LUTHER KING, JR. HOLIDAY
- March 19-23 SPRING BREAK
- April 13 HOLIDAY
- April 30 Classes End
- May 1-2 Study Period
- May 3-8 Final Examinations
- May 11 Commencement

SUMMER SEMESTER, 1990

- May 30 Registration
- May 31 Classes Begin
- July 3 First Session Ends
- July 4 INDEPENDENCE DAY HOLIDAY
- July 5 Second Session Begins
- August 8 Second Session Ends
- August 10 Commencement
# The University of Tennessee, Knoxville

## Agricultural Campus

<table>
<thead>
<tr>
<th>NO.</th>
<th>NAME</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>301.</td>
<td>Agricultural Engineering</td>
<td>C4</td>
</tr>
<tr>
<td>302.</td>
<td>Agricultural Engineering Offices</td>
<td>C4</td>
</tr>
<tr>
<td>303.</td>
<td>Animal Science Laboratory</td>
<td>D6</td>
</tr>
<tr>
<td>304.</td>
<td>C.E. Brehm Animal Science</td>
<td>B5</td>
</tr>
<tr>
<td>305.</td>
<td>College of Veterinary Medicine</td>
<td>B6</td>
</tr>
<tr>
<td>306.</td>
<td>Dairy Products</td>
<td>B4</td>
</tr>
<tr>
<td>307.</td>
<td>Ellington Plant Sciences</td>
<td>C5</td>
</tr>
<tr>
<td>308.</td>
<td>Entomology &amp; Plant Pathology Lab</td>
<td>C5</td>
</tr>
<tr>
<td>309.</td>
<td>Growth Chambers Laboratory</td>
<td>D5</td>
</tr>
<tr>
<td>310.</td>
<td>Horticulture &amp; Forestry Laboratories</td>
<td>D5</td>
</tr>
<tr>
<td>311.</td>
<td>Library</td>
<td>C5</td>
</tr>
<tr>
<td>312.</td>
<td>McCord Hall</td>
<td>A2</td>
</tr>
<tr>
<td>313.</td>
<td>McLeod Hall</td>
<td>C4</td>
</tr>
<tr>
<td>314.</td>
<td>Morgan Hall</td>
<td>C4</td>
</tr>
<tr>
<td>315.</td>
<td>Power Plant</td>
<td>C3</td>
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<tr>
<td>316.</td>
<td>Printing &amp; Publications</td>
<td>D6</td>
</tr>
<tr>
<td>317.</td>
<td>Tennessee Division of Forestry</td>
<td>D6</td>
</tr>
</tbody>
</table>

## Main Campus

<table>
<thead>
<tr>
<th>NO.</th>
<th>NAME</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Administration Parking Garage</td>
<td>K5</td>
</tr>
<tr>
<td>2.</td>
<td>Alumni Memorial Building</td>
<td>L3</td>
</tr>
<tr>
<td>3.</td>
<td>Alumni Hall</td>
<td>K2</td>
</tr>
<tr>
<td>4.</td>
<td>Andy Holt Tower</td>
<td>L5</td>
</tr>
<tr>
<td>5.</td>
<td>Anthropology Areas</td>
<td>C4</td>
</tr>
<tr>
<td>6.</td>
<td>Anthropology Art Area</td>
<td>F4</td>
</tr>
<tr>
<td>7.</td>
<td>Aquatic Center</td>
<td>F5</td>
</tr>
<tr>
<td>8.</td>
<td>Army Reserve Training Center</td>
<td>J5</td>
</tr>
<tr>
<td>9.</td>
<td>Art and Architecture</td>
<td>J4</td>
</tr>
<tr>
<td>10.</td>
<td>Austin Peay Psychology</td>
<td>L2</td>
</tr>
<tr>
<td>11.</td>
<td>Ayres Hall</td>
<td>M2</td>
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<tr>
<td>12.</td>
<td>Berry Hall</td>
<td>M4</td>
</tr>
<tr>
<td>13.</td>
<td>Black Cultural Center</td>
<td>K2</td>
</tr>
<tr>
<td>14.</td>
<td>Campus Information Center</td>
<td>K4</td>
</tr>
<tr>
<td>15.</td>
<td>Carrot Theater</td>
<td>J4</td>
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<tr>
<td>16.</td>
<td>Carrot Hall</td>
<td>K3</td>
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<tr>
<td>17.</td>
<td>Carnalics</td>
<td>J4</td>
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<tr>
<td>18.</td>
<td>Child and Family Studies</td>
<td>M1</td>
</tr>
<tr>
<td>19.</td>
<td>Child Development Laboratories</td>
<td>M1</td>
</tr>
<tr>
<td>20.</td>
<td>Clarence Brown Theater</td>
<td>J4</td>
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<tr>
<td>21.</td>
<td>Clayton Education</td>
<td>K3</td>
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<tr>
<td>22.</td>
<td>Clayton Education Addition</td>
<td>J1</td>
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<tr>
<td>23.</td>
<td>Clement Hall</td>
<td>L5</td>
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<tr>
<td>24.</td>
<td>Communications and University Extension</td>
<td>L5</td>
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<tr>
<td>25.</td>
<td>Craft House</td>
<td>L1</td>
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<tr>
<td>26.</td>
<td>Credit Union</td>
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<tr>
<td>27.</td>
<td>Dabney/Baulter Hall</td>
<td>N2</td>
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<td>28.</td>
<td>Doherty Engineering</td>
<td>K2</td>
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<tr>
<td>29.</td>
<td>Dunford Hall</td>
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<tr>
<td>30.</td>
<td>Estabrook Hall</td>
<td>M2</td>
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<tr>
<td>31.</td>
<td>Facilities Planning (Architect)</td>
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<tr>
<td>32.</td>
<td>Faculty Club</td>
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<tr>
<td>33.</td>
<td>Ferns Hall</td>
<td>N2</td>
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<tr>
<td>34.</td>
<td>Geology and Geography</td>
<td>K3</td>
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<tr>
<td>35.</td>
<td>Gibb Hall</td>
<td>J3</td>
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<tr>
<td>36.</td>
<td>Glover Business Administration</td>
<td>K2</td>
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<tr>
<td>37.</td>
<td>Greve Hall</td>
<td>J3</td>
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<tr>
<td>38.</td>
<td>Hearing and Speech Center</td>
<td>L4</td>
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<td>39.</td>
<td>Henson Hall</td>
<td>K2</td>
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<tr>
<td>40.</td>
<td>Hasler Biology</td>
<td>M3</td>
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<tr>
<td>41.</td>
<td>Hess Hall</td>
<td>J3</td>
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<tr>
<td>42.</td>
<td>Human Ecology (Harris)</td>
<td>M1</td>
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<tr>
<td>43.</td>
<td>Hopscotch</td>
<td>K3</td>
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<tr>
<td>44.</td>
<td>Humanities and Social Sciences</td>
<td>K4</td>
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<tr>
<td>45.</td>
<td>Humes Hall</td>
<td>G4</td>
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<tr>
<td>46.</td>
<td>International House</td>
<td>L1</td>
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<tr>
<td>47.</td>
<td>Kingston Apartments</td>
<td>C1</td>
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<tr>
<td>48.</td>
<td>Kingston Parking Garage</td>
<td>G1</td>
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<tr>
<td>49.</td>
<td>Knoxville Assembly Center &amp; Arena</td>
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<tr>
<td>50.</td>
<td>Law Center (Taylor)</td>
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<td>51.</td>
<td>Library (Hodges)</td>
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<tr>
<td>52.</td>
<td>Life Sciences (Walters)</td>
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<td>53.</td>
<td>Massey Hall</td>
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<td>54.</td>
<td>McClung Museum</td>
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<td>55.</td>
<td>McClung Tower</td>
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<tr>
<td>56.</td>
<td>McClung Plaza &amp; Garage</td>
<td>K4</td>
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<tr>
<td>57.</td>
<td>Melrose Hall</td>
<td>J3</td>
</tr>
</tbody>
</table>
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 the Graduate School, C.W. Minkel, B.A., M.A., Ph.D.
Vice Provost for Research, Thomas C. Collins, B.S., M.S., Ph.D.
Vice Provost, Anne Hopkins, A.B., A.M., Ph.D.
Executive Vice Chancellor for Business, Planning and Finance, Homer S. Fisher, B.S., M.B.A.
Associate Executive Vice Chancellor for Business, Planning and Finance, Betsy B. Creekmore, A.B., M.A., M.A.L.S.
Associate Executive Vice Chancellor for Business, Planning and Finance and Director of Personnel, Edward K. Bennett, B.S.
Vice Chancellor for Student Affairs, Philip A. Scheurer, B.A., M.S.
Assistant Vice Chancellor for Student Affairs, Bert E. Sams, B.S., M.S.
Vice Chancellor for Development and Alumni Affairs, Jack E. Williams, B.S.
Assistant Vice Chancellor for Development, Linda Davidson, B.A.
Assistant Vice Chancellor for Alumni Affairs, Martha Masengill, B.S.

General Administrative Officers

Athletics, Director, Doug Dickey
Finance, Director, Harold B. Whitehead, B.S., C.P.A.
Physical Plant, Director, John C. Parker, B.S.
University Communications, Director, John Clark, M.S.
Student Affairs:
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, Acting Director, James N. Gehlhar, B.A., Ph.D.
Intercollegiate Athletics for Women, Director, Joan Cronan, B.S., M.S.
Student Conduct, 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
Acting Dean, William Laver, B.S., M.S.
College of Business Administration
Dean, C. Warren Neel, B.S., M.B.A., Ph.D.
College of Communications
Dean, Kelly Lathen, 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 Human Ecology
Dean, Jacqueline DeJonge, B.S., M.A., Ph.D.
College of Law
Dean, Marilyn Yarbrough, B.A., J.D.
College of Liberal Arts
Dean, Lorman Ratner, A.B., M.A., Ph.D.
Graduate School of Library and Information Science
Acting Director, Gary Purcell, A.B., M.A., M.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.
College of Social Work
Dean, Enzie Shatz, B.A., M.S.S.A., Ph. D.
Independent Departments
Air Force Reserve Officers' Training Corps Professor of Air Science, Lt. Colonel Rex Jones, USAF
Army Reserve Officers' Training Corps Professor of Military Science, Lt. Colonel, Hugh E. Howard, USA

AT OAK RIDGE
Oak Ridge Graduate School of Biomedical Sciences
Acting Director, Raymond A. Popp, B.S., A.M., Ph.D.

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

Other Educational and Public Service Units

Libraries
Dean, Paula Kaufman, A.B., M.S., M.B.A.
The University

The University of Tennessee, Knoxville is the state's "campus of excellence" in undergraduate, graduate, and professional studies; research and creative activity; and public service. The University offers more than 300 degree programs to its 25,000 students, who come from every county in Tennessee, every state in the nation, and more than 90 countries. The faculty and staff of UT Knoxville are constantly working to enhance the quality of students' educational experiences, using information from student tests and surveys to improve teaching and student services. Recent improvements at the undergraduate level include an increased emphasis on advising and better training of graduate teaching assistants.

In 1988, the University moved from the quarter system to a semester system, giving teachers and students more time for special class projects. As part of the move, the faculty carefully examined each course to ensure its relevance to a changing world. Developments in graduate education have been accompanied by expanded cooperation with Oak Ridge National Laboratory (ORNL) and the Tennessee Valley Authority and by growth of major research programs, including those in the fields of energy, biotechnology, and robotics.

The Science Alliance, is the largest in Tennessee's Centers of Excellence program for higher education. The Science Alliance's Distinguished Scientist Program, designed to strengthen cooperative instructional and research activities, attracts many eminent scientists to joint appointments at UT Knoxville and ORNL.

The University's libraries, with more than two million volumes and volume-equivalents, enhance an educational program dedicated to keeping pace with a changing society. A 350,000-square-foot library, in the center of the campus meets student and faculty research space needs and incorporates the latest advances in computer and automation technology.

Through public service activities, the University extends its resources throughout the state and nation. Continuing education programs, offered in more than 40 locations across Tennessee, respond to the needs of working adults who are seeking college degrees or preparing for career advancement.

HISTORICAL BACKGROUND

The University of Tennessee, one of the nation's oldest institutions of higher education, traces its origins back to 1794—when George Washington was President of the United States.

Two years before statehood was achieved, the Legislature of the Federal Territory which later became Tennessee granted a charter to Blount College, named in honor of William Blount, territorial governor. Located near the center of Knoxville's present business district, Blount College was non-sectarian in character, which was unusual for an institution of higher education in that day. The University has remained non-denominational and is said to be the oldest such institution west of the Appalachian Divide.

From 1800 to 1804, Blount College admitted women as students, thus becoming the first coeducational college in the United States. The institution later restricted enrollment to men, but reestablished its coeducational status in 1892.

In 1807 the state legislature changed the name to East Tennessee College, and in 1826 the present site at Knoxville, the 40-acre tract known as "The Hill," was acquired. The college's name changed again in 1840—to East Tennessee University. The Civil War forced the institution to close, and its buildings were used as a hospital for Confederate troops and later occupied by Union troops.

East Tennessee University reopened after the war, and in 1869 the state legislature selected the University as the state's Federal Land-Grant Institution, under terms of the Morrill Act passed by Congress in 1862. This enabled the University to broaden its offerings by establishing an Agricultural and Mechanical College.

Ten years later, East Tennessee University was chosen by the state legislature as Tennessee's State University, and its name was changed to the University of Tennessee. The University pledged itself to the service and interest of the entire state, and the state pledged its name and reputation to the University, promising the institution a vital role in the progress of the state.

Today, the University is a statewide institution in terms of its physical locations as well as its services. The medical campus, founded in Nashville and acquired by the University in 1879, was moved to Memphis in 1911. The Martin campus, established in 1900 as a private institution, became part of the University of Tennessee in 1927. A fourth primary campus was established in Chattanooga in 1969 when the University of Chattanooga merged with the University of Tennessee. The University's Nashville Center, established in 1947, became the fifth primary campus in 1971, but eight years later merged with Tennessee State University.

The Agricultural Extension Service, with district offices in Chattanooga, Cookeville, Jackson, Knoxville, and Nashville, has agricultural extension leaders and agents in each of Tennessee's 95 counties. There are 15 Agriculture Experiment Stations located across the state.

In 1968, the University's Board of Trustees reorganized the five-campus 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, particularly those of the past half century, have shown an active interest in the development of the University of Tennessee. Their 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.
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, Doug Dickey, 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 basketball, baseball, swimming, tennis, and golf. Intercollegiate games are played according to the rules of the National Collegiate Athletic Association (NCAA) and the Southern 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. 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.

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.

THOMPSON-BOLING ASSEMBLY CENTER AND ARENA

Thompson-Boling Assembly Center and Arena opened its doors in December, 1987. The enormous facility, which seats 24,536, is named for the late B. Ray Thompson and recently retired UT President Edward J. Boling. Thompson-Boling Arena has already attracted such events as the 1989 SEC Basketball Tournament and the 1990 NCAA Women's Final Four to the University of Tennessee.

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, named in honor of William S. Shields, former member of the University Board of Trustees, and his wife, is named for the late B. Ray Thompson and recently retired UT President Edward J. Boling. Thompson-Boling Arena has already attracted such events as the 1989 SEC Basketball Tournament and the 1990 NCAA Women's Final Four to the University of Tennessee.

BLACK CULTURAL CENTER

Tom Black Track is home to regional and national meets subject to Olympic specifications. Hudson Field, baseball field and stadium seats 1,500 fans in addition to providing dugouts and press box facilities. New tennis courts also afford an excellent vantage point for spectators.

OTHER FACILITIES

The Center represents one effort by the University to utilize the opportunities provided by the Center for increased knowledge about the Black experience.

CAREER PLANNING AND PLACEMENT SERVICE

The Career Planning and Placement Service helps students through individual and group assistance to assess career alternatives, find employment, and complete a successful transition from The University to the world of work. The Service is especially well-known for its effective placement help which includes on-campus recruitment, job referrals, and other sources of job contacts.

Included in the services offered at Career Planning and Placement are, DISCOVER, a computer aided career guidance system; CAREER DECISION-MAKING, a one credit seminar course designed to help with choosing a major; a CAREER RESOURCE CENTER that includes a comprehensive collection of career-related books, magazines, articles, and videotapes; CAREER CONNECTIONS, a newspaper published each fall, with the latest information about careers and the job market; COOPERATIVE EDUCATION, a program for alternating terms of school and full-time work experience for non-engineering majors; CAREER CARNIVAL, an annual career fair providing opportunities to speak informally with representatives from 80-100 different companies about their entry level jobs and hiring practices; an ANNUAL SUMMER JOB FAIR and a biweekly SUMMER JOBS NEWSLETTER sent to interested students.

Also available are a GRADUATE SCHOOL INFORMATION DAY and NURSING CAREER DAY; EMPLOYER INFORMATION which includes types of majors sought, job descriptions, career profiles, annual reports, and other pertinent information for hundreds of companies that recruit at UT, WORKSHOPS providing instruction in skills and tactics for successful interviewing, resume preparation, finding a job, and other topics; CREDIT COURSES, including Business Career Planning & Placement; Job-Skills Training for Non-technical Majors, the Job Search, and Career Decision-making.

ON-CAMPUS INTERVIEWS are scheduled during the senior year, and recent graduates are interviewed on campus by representatives of registrants and participation. Over 12,000 interviews are scheduled each year which include approximately 350 companies, government agencies, and school systems; JOBS NEWSLETTER, published biweekly - one for positions in education and one for business, industry, and government. An ALUMNI PLACEMENT SERVICE offers assistance in the job search after graduation and CRE-DENTIAL SERVICE mission abet for careers and other professions requiring documentation of career-related experiences along with letters of recommendation.

For information regarding Career Planning and Placement Services call 974-5435.
existing courses and new learning opportunities beyond the primary campuses of The University of Tennessee. The Center utilizes various communication and teaching media - correspondence courses, videotape, broadcast and closed-circuit television, audiotape, radio, and conferences - to provide learning opportunities to individuals and groups.

CEL extends college credit courses, non-credit courses, and high school courses for qualified people in the most accessible locations: their homes, local schools, and job sites. Also, CEL provides in-plant supervisory training programs and continuing education for nurses, especially in the area of critical care. Through the Center for Extended Learning, the University of Tennessee is able to overcome geographic limitations in performing its services as Tennessee's landgrant institution of higher education.

For information on enrollment, costs, books, and credit, write: Center for Extended Learning, 420 Communications and University Extension Building, The University of Tennessee, Knoxville, Tennessee 37996-0300. Telephone: (615) 974-5135.

CENTER FOR INTERNATIONAL EDUCATION

(International students interested in applying to UTK should consult the requirements listed in the International Student Applicants section of this Catalog, or for graduate studies, the Graduate Catalog.)

The goal of the Center for International Education, 201 Alumni Hall, is to promote and facilitate the internationalization of the UTK campus, curriculum and community. It assists students and faculty from other countries with matters of particular concern to them during their stay in the United States. It provides advice concerning visas and with the U.S. Immigration and Naturalization Service (INS). The Center is the University's official representative to INS, to international educational organizations and to sponsoring agencies. It maintains current records on all UTK-related U.S. visa holders.

The Center serves as a liaison with international students and scholars and the faculty and students of the UTK campus, curriculum and community. It assists with adjustment through orientation programs required of all new international students at the beginning of each academic term, and through individual advising and counseling on personal and academic matters.

The Center's International House, 1515 River Terrace, is a housing option for international students during the summer months. The International House offers on-campus accommodations and services for the University's teaching, research, public service, and administrative activities. UTCC offices and principal computing facilities are located on the first two floors of Stokely Management Center.

UTCC maintains remote job entry stations for batch work and sites for interactive computer work on the Knoxville campus, and supplies computing services to the other campuses in the UT System through remote job entry facilities.

UTCC periodically offers intensive training seminars on the utilization of the IBM and VAX 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 Context, 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.

CULTURAL OPPORTUNITIES

THEATRE

The University of Tennessee Theatres consists of the Clarence Brown Theatre Company and the University Company.

The Clarence Brown Theatre Company is the professional theatre company in residence at the University of Tennessee, Knoxville. Founded in 1974 by Anthony Quayle and Ralph G. Allen, the Clarence Brown Theatre Company is a member of the League of Resident Theatres (LORT) and Theatre Communications Group, Inc.

The University Company has, under various titles, been staging productions since the late 1930s, using UT students and faculty as well as talent from the Knoxville Community.

In addition to these companies, the Department of Theater sponsors the Theatre Students' Association, the student-producing organization of the University of Tennessee. TSA produces six to nine productions annually in the Studio Theatre.

The professional and university companies perform in the Clarence Brown Theatre and the Carousel Theatre. The Clarence Brown Theatre was built in 1970, and includes the 600-seat main auditorium with a proscenium stage, and the Studio Theatre, a 125-seat proscenium thrust theatre. The Clarence Brown Theatres is also home to the costume, electrics and scene shops and box office.

The Carousel Theatre is an arena theatre constructed in the early 1950s. Originally a tent theatre, the Carousel Theatre provides intimate surroundings for smaller and contemporary works. The seating is flexible, accommodated on gondolas for UTK and non-UTK audiences.

The season runs from September through June, and features a combination of student/faculty and professional productions. A primary series of six shows is complemented by a series of two to three contemporary productions. The Department of Theatre also hosts an annual residency of an international theatre company and several international artists.

All University students are welcome to join the University of Tennessee Theatres and participate in the productions.

FRANK H. MCCULG 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, medicine, local history and architecture, geological sciences and natural history.

Temporary and permanent exhibits are presented on those subjects. The Eleanor Deane Audigier Art Gallery exhibition features a selection of originals and copies of art objects from various periods through the turn of the century. 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 exhibition The American Indian in Tennessee. The Museum's comprehensive medical collection is reflected in the exhibit Late 19th-Early 20th Century Medical Practices in East Tennessee. Some aspects of the geological sciences and the natural history of Tennessee are explored in an exhibit on the main floor. Exhibits on the history of Knoxville, the University and East Tennessee are located in the Green Memorial Room. Changing temporary exhibits and other displays 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 Department of Art in the Ewing Gallery of Art and Architecture, located on the ground floor of the Art and Architecture Building. The outdoor Sculpture Tour displays sculpture at various locations on campus. The sculptures are replaced each year with new works of artists of regional and national reputation.

Artspace of Tennessee, a T.A.M.F, affiliate located in Gatlinburg, Tennessee, displays works by faculty and students during the summer months.

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

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

**MUSIC**

UT Choral Groups consist of Concert Choir, University Chorus, Women's Chorale, Chamber Singers, and UT Singers. These choirs are open to all students by audition, except University Chorus which does not require auditions. UT Singers are known as the University's "Good Will Ambassadors." Among the many projects of this group are the annual state-wide tour each spring.

UT Opera Theatre and Workshop present a series of operas yearly. The varied program of operatic music ranges from one-act to complete three-act operas with symphonic accompaniment, and from television opera to selected scenes from the classical repertory.

UT Symphony Orchestra plays concerts on campus yearly as well as serving as orchestra for opera and choral productions. The marching band, celebrating the "Pride of the Southland," presents outstanding entertainment on football Saturdays at both home and out-of-town games.

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

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

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

The Scottish Rite Masonic Chair of Choral Art brings to The University of Tennessee a distinguished conductor and/or composer in the field of choral music who serves as a guest lecturer for workshops sponsored by the Department of Music.

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

**CONCERTS**

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

Campus Entertainment Board. This student and staff committee has the exclusive responsibility to sponsor popular entertainment on campus through 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 semester 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, 91.9 FM, Knoxville, serves East Tennessee with news, information, and programs of community interest. WUOT broadcasts in stereo with an effective radiated power of 100,000 watts, as authorized by the FCC. 24 hours each day, WUOT presents a classical, fine arts format designed to enrich and improve the cultural climate of those in the listening area. 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, American Public Radio, and the Southern Educational Communication Association radio division of the Corporation for Public Broadcasting criteria for full service operation as a public radio station and is a member in good standing of the National Association of Broadcasters. A sample program guide may be obtained at station offices in Room 232 Communications Building.

WUTK-FM is a student-oriented radio station operated by the Department of Broadcasting at The University of Tennessee, Knoxville. Broadcasting majors serve as announcers, news writers and reporters, producers, and account executives. The station is programmed as an album-oriented rock music station and is licensed at 90.3 on the FM band. The target audience for the station is the student population of UTK. Studios are located at P-103 Andy Holt Tower.

WUTK-AM is a 50,000 watt day-time AM station located at 850 on the AM band. The station is licensed to the Board of Trustees of the University of Tennessee and operated by the Department of Broadcasting at the University of Tennessee. Advanced broadcasting majors serve as announcers, news reporters and account executives. The station is an ALL NEWS station broadcasting news from CBS Radio, CNN Radio, the Tennessee Radio Network, and local and regional news. The station serves all of East Tennessee with news and information. Studios are located in P-103 Andy Holt Tower.

**DEAN OF STUDENTS OFFICE**

This office coordinates the operation and activities of the following units: University Center, Recreation; Student Activities, Student Conduct, Orientation, Handicapped Student Services, Student Publications, Fraternity and Panhellenic Affairs, and all other extracurricular activities. It develops recreational, cultural and social programs, administers policies related to student activities and organizations, and works to develop new and effective programs for the campus community.

**THE INTRAVENTION ADVANCEMENT PROGRAM**

The Educational Advancement 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, have difficulty in achieving academic success during their initial University experience. The program offers specially designed courses in mathematics, biology, English, and university studies. 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, special help sessions, individual and small-group tutors, self-paced courses, individual academic advising each term, and both academic and personal counseling services. In addition, the EAP staff attempts to serve as liaison for the student in any area of University experience in which the student needs help.

The offices of the program are located on the ground floor of the Student Counseling Center at 900 Volunteer Boulevard. Phone number: 974-7900.

**FOOD SERVICE FACILITIES**

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

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

In addition, the Food Services Department offers a charge plan whereby students may charge meals and have the bill rendered to their parents monthly. A prepaid charge plan, "Dining Plus", is available to certain students, faculty and staff. With a modest prepayment of at least $100.00 students may charge meals and receive a bonus credit of 5% of the prepaid amount. With a prepayment of $200.00 or more students receive a bonus credit of 10% on the prepaid amount.

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

**HANDICAPPED STUDENT SERVICES**

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 as 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: 974-6067.

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 Admissions and Records, 305 Student Services Building.

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

HEARING AND SPEECH SERVICES
The Hearing and Speech Center, located at the corner of Yale Avenue and Stadium Drive, offers complete diagnostic and treatment services to all University students with hearing and/or speech problems. There is no charge for services to University students. The Center serves as a clinical observation and education facility for students majoring in Speech Pathology and Audiology. It also serves as a community Hearing and Speech Center, providing diagnostic and treatment services for speech, language, and hearing disorders for persons of all ages.

HOUSING
The University strives to maintain convenient and comfortable residence hall facilities which are available to all students at a reasonable cost. Many residence halls provide excellent study facilities, including computer rooms, and are all within easy walking distance of classrooms and other university facilities. On-campus housing provides an atmosphere which is conducive to academic achievement and personal development and is therefore recommended that all students reside in University housing. All first-year students who are not living with a parent or guardian are required to live in University housing.

Housing contracts are a commitment for the academic year, or for shorter periods if the student enters the University during spring. A Housing Application will be mailed as a part of the Application for Admission. Residence Hall assignments for the academic year are made in the late spring and summer. The student must be admitted to the University prior to occupancy. If a student wishes to live off-campus, 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 handle 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 Residence Halls, 405 Student Services Building, The University of Tennessee, Knoxville, Tennessee 37996-0241.

Off-Campus Housing. Students living in off-campus housing are expected to observe the same rules of conduct and standards that are applicable to all students. The student is responsible for obtaining off-campus housing. The University does not inspect or approve these facilities. Terms and conditions for the rental of off-campus housing are between the student and the landlord. Information and assistance in locating off-campus housing is available in the Off-Campus Housing Office located in 336 University Center.

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

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

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.

LIBRARIES
The University of Tennessee, Knoxville Library owns approximately 1,600,000 volumes, more than 3,000,000 manuscripts, 70,000 microfilm reels, and 1,600,000 items of other microtext, plus audio and video recordings, and United States and United Nations documents. The UTK library currently subscribes to more than 18,000 periodicals and other serial titles. The library's membership in the Association of Research Libraries reflects the University's emphasis on graduate instruction and research and the support of large, comprehensive collections of library materials on a permanent basis. Library holdings in Knoxville are housed in the new 350,000 square foot facility, the John C. Hodges Library, and its branch libraries for agriculture-veterinary medicine and music. Special features of the new Hodges Library include a fully-equipped Microcomputer Lab and a state-of-the-art, fiber-optic wired Audiovisual Services department. The library also has comfortable study space for 3,500 students, 308 graduate carrels, and 196 faculty studies.

Located in the James D. Hoskins Library, Special Collections is a branch library which is a repository of regional and local materials, Tennesseana, and other specialties, including legislative papers and mementoes of many Tennessee political figures. Special Collections materials are of particular interest to scholars in the fields of history, political science, social sciences, biological sciences, and the arts. Library research holdings are augmented by Reference Information Services and by Interlibrary Loan. Reference and Information Services provide access to commercially available databases, while Interlibrary loan borrows monographs and obtains copies of other libraries around the world. Library holdings are accessible via a sophisticated online catalog which can be searched both in the library and from home and office computers.

The Law Library, which holds a collection of over 150,000 volumes, on the Knoxville campus and the libraries located on the campuses in Chattanooga, Martin, Memphis and Tullahoma are individually administered.

Each library at The University of Tennessee is accessible to all students and faculty in the system.

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 and assistance with educational, employment and financial assistance opportunities, offers tutorial services workshops, and career development programs. The office is located at 812 Volunteer Boulevard.

OMBUDSMAN OFFICE
The Ombudsman Office in the University Center supplements existing appeals channels and actively seeks better ways for the University to serve students. Students who encounter problems with any aspect of the University may receive assistance in resolving them from the Ombudsman. Problems are treated confidentially.

RELIGIOUS RESOURCES
The University, established by a government that recognizes no distinction among
Services Fee or, if taking fewer than 9 hours, paying the full University Programs and University are available to any student who
STUDENT HEALTH SERVICE
Health services provided by the University are available to any student who has paid the health fee (either through paying the full University Programs and Services Fee or, if taking fewer than 9 hours,

STUDENT ORGANIZATIONS
On the campus there are a large number of student chapters of professional organizations, special interest clubs, and other extracurricular. These organizations and clubs provide broad opportunities for student participation.

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-term new student, as well as orientation programs for freshmen and transfer students presented prior to the beginning of the term.

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,

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 Law Review, published quarterly by students of the College of Law.

STUDENT RIGHTS AND RESPONSIBILITIES
By registering in the University, the student neither loses the rights nor escapes the duties of a citizen. Enjoining 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, is published and distributed annually so that students are aware of the University Standards of Conduct and all disciplinary regulations and procedures.

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

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

VEHICLE OPERATION AND PARKING
The University of Tennessee endeavors to provide adequate traffic control and parking facilities for vehicles being operated by students and staff. Student parking areas are located on the perimeter and throughout the Main Campus and Agriculture Campus. Bus service is provided between the two campuses and a perimeter lot off Concord Street. Faculty and staff parking areas are located throughout the campus. See the 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 Office. 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 tags in their vehicles may park in any unreserved staff area (EXCEPT THOSE AROUND RESIDENCE HALLS) between the hours of 10 P.M. and 7 A.M., Monday through Friday, and 12 Noon Saturday to 7 A.M. Monday.

2. General parking is permitted in staff areas around the residence halls between 5 P.M. and 3 A.M. After this time, vehicles without permits for these areas may be towed.

3. Staff and students with current UTK parking permits may park in unreserved staff areas around the academic buildings from 5 P.M. to 7 A.M.

4. Overnight parking is not permitted in the Student Commuter Parking Areas nor in Student Aquatic Center Parking Area.

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

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 Office at 1115 UT Drive or at the Campus Information Center at the entrance to Circle Park.

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

WRITING CENTER
To aid students in regaining and improving their skills in writing, the University operates a Writing Center. Students who have successfully completed the first semester of the English Composition sequence may voluntarily visit the center at any time for help with their writing.

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>Undergraduate Students Per Semester</th>
<th>$695</th>
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<tbody>
<tr>
<td>Graduate Students</td>
<td>Per Semester</td>
<td>$792</td>
</tr>
<tr>
<td>Law Students</td>
<td>Per Semester</td>
<td>$888</td>
</tr>
<tr>
<td>Veterinary Students</td>
<td>Per Semester</td>
<td>$1345</td>
</tr>
</tbody>
</table>

All students both in and out-of-state are required to pay the established maintenance fee.

TUITION (additional for all out-of-state students) | Per Semester | $1367 |

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 semester 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>In-State</th>
<th>$74 per semester hour or fraction thereof; minimum charge $148</th>
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<tbody>
<tr>
<td></td>
<td>Out-Of-State</td>
<td>$170 per semester hour or fraction thereof; minimum charge $340</td>
</tr>
<tr>
<td>Graduate Students:</td>
<td>In-State</td>
<td>$115 per semester hour or fraction thereof; minimum charge $630</td>
</tr>
<tr>
<td></td>
<td>Out-Of-State</td>
<td>$250 per semester hour or fraction thereof; minimum charge $500</td>
</tr>
<tr>
<td>Law Students:</td>
<td>In-State</td>
<td>$129 per semester hour or fraction thereof; minimum charge $630</td>
</tr>
<tr>
<td></td>
<td>Out-Of-State</td>
<td>$263 per semester hour or fraction thereof; minimum charge $526</td>
</tr>
</tbody>
</table>

UNIVERSITY PROGRAMS AND SERVICES FEE | Per Semester | $88 |

All undergraduates, graduates, and law students taking in excess of eight hours per term will be assessed a University Programs and Services Fee of $88 per semester for the academic year and $52 for the summer term. Part-time students taking eight semester hours or less will be assessed at the rate of $6 per semester hour (minimum $12) but are not entitled to admission to general activities programs. Such students may elect to pay the $26 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. 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 semester...$45
One hour lesson per week, per semester ...........$90
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 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 semester it is paid.

LATE PAYMENT 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 semester must pay their fees (or make satisfactory arrangements with the Bursar's Office) on the regular registration dates in order to avoid late payment service charges.

The following late payment charges are applicable on the dates indicated:

<table>
<thead>
<tr>
<th>Advanced Registered Students</th>
<th>Secondary Registered Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td>$2.00</td>
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<tr>
<td>Day 2</td>
<td>4.00</td>
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<tr>
<td>Day 3</td>
<td>6.00</td>
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<tr>
<td>Day 4</td>
<td>8.00</td>
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<tr>
<td>Day 5</td>
<td>10.00</td>
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<tr>
<td>Days 6-10</td>
<td>20.00</td>
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<tr>
<td>Days 11-15</td>
<td>30.00</td>
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<tr>
<td>Days 16-20</td>
<td>40.00</td>
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<tr>
<td>Days 21-25</td>
<td>50.00</td>
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<tr>
<td>Days 26-30</td>
<td>60.00</td>
</tr>
<tr>
<td>Over 30 days</td>
<td>70.00</td>
</tr>
</tbody>
</table>

Failure to pay fees or to make satisfactory arrangement for deferment or waiver by the end of the fourth week of classes will result in automatic assessment of appropriate fees, including late payment charges and forfeiture of all University services including the receipt of grades, transcripts and schedules of classes.

REINSTATEMENT FEE ............. $45
A student whose grades are withheld for failure to pay appropriate fees who is reinstated for the semester will be charged a $45 reinstatement service fee.

LATE REGISTRATION FEE .......... $15
Students who do not advance register will be charged a $15 late registration fee.

RETURNED CHECK PENALTY
DURING REGISTRATION CHECK-IN DAYS, ALL CHECKS ARE DEPOSITED THE DAY THEY ARE RECEIVED. A $10.00 service charge will be assessed when checks fail to clear the bank on which drawn. In addition, if the returned check is in payment of initial fees and charges, the late payment penalty in effect at the time the check is redeemed (minimum charge - $20) will be added to the returned check service fee. If the check is not cleared within seven days an additional $10 service charge will be added. Returned checks will not be redeposited. Cash or cashier's check are required for payment of the returned check service fee. Failure to clear returned checks will result in the forfeiture of all University services including the receipt of grades, transcripts, and schedules of classes.

TUITION PAYMENT PLANS
All student fees are due in advance and should be paid in full at registration each semester.

Prepayment Plan
A prepayment plan has been developed to assist parents and students with planning and budgeting their academic year expenses. Under the plan, students may
chose the expenses they wish to prepay including room, board, tuition, and fees. Expenses can be prepaid over a period of eight months. Students and/or parents wishing to participate in the prepayment plan should contact the Bursar's Office for details.

Deferred Payment Policy

Although fees, rent, and other University expenses are due and payable at the beginning of each semester, a student in good financial standing with The University may request a deferment of up to 50% of the total charges at registration. The deferred payment may be divided into two equal payments payable on the 28th and 56th day of the term. All financial aid monies must be applied to fees before a deferment will be considered. A deferred payment service fee of $10.00 is assessed when any portion of tuition, fees, and other charges are deferred with the approval of the Bursar's Office. An additional $25.00 late payment charge will be assessed on each monthly installment which is not paid on or before the due date. For more information and an application, contact the Bursar's Office.

Deferred Payment Service Fee: $10

(See Tuition Payment Plans)

This fee is applicable when the payment of any part of a student's account is deferred, including accounts which must be billed to outside agencies, organizations, and institutions.

Late Payment Service Fee: $5

This fee is applicable when a supplemental charge (tuition, room, and board adjustments, etc.) is not paid within seven calendar days after the date it is incurred. Students are expected to take the initiative to pay all University obligations promptly. The $10 deferred payment service fee will be added if it is necessary for the Bursar's Office to send a notice regarding non-payment of the adjustment.

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.

Clem Fees

$5 per credit hour for evaluation and proficiency credit.

Proficiency Fees

Fees for proficiency examinations are $5 per credit hour for undergraduates and $7 per credit hour for graduates. See page 37 for other information on proficiency, and CLEP examinations.

Registration Fee: $23

If credit is received, the appropriate semester hour rate will be added.

Audit'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.

Tuition/Fee Refund Policy for Withdrawals

Withdrawal from school for the term, after receiving a schedule, even though classes have not been attended or fees paid, must be by official notification to the Withdrawal Office, 212 Student Services Building. The effective date of withdrawal is the date the Withdrawal Request Form is notified by completion of the official Withdrawal Request Form. Failure to Attend Class Does Not Automatically Cancel Enrollment. The appropriate percentage of fees will be charged unless the Withdrawal Office is notified by the close of the last day designated for Registration Check-In and before the first official day of classes for the term. Failure to notify the Withdrawal Office promptly when withdrawing could result in a larger fee assessment.

Withdrawal Date Percentage Refund

Registration Days

Days 1-7 100%

Days 8-14 90%

Days 15-21 80%

Days 22-28 70%

Over 28 days No Refund

Refunds resulting from withdrawal will be made, as soon as possible, after the drop deadline. Room and board refunds are determined by the Office of Residence Halls in accordance with the terms of the Housing and Food Services Contract.

The above refund policy does not apply to the off-campus Graduate Centers. Refunds, in accordance with the withdrawal refund policy, will be made after the drop deadline.

Tuition/Fee Assessment Policy for Dropped Courses

The Drop/Add Procedure Cannot Be Used to Withdraw From School for the Term. Students who drop courses and continue with a reduced course load are eligible for a refund only if the total charges at the semester hour rate for the courses continued plus the percentage assessed at the semester hour rate for the courses dropped results in an amount less than that paid.

A course is not officially dropped until a drop/add slip has been processed and recorded by the admissions and records office. Failure to attend class does not automatically withdraw or drop a student from school or class.

The following percentage assessments are applicable for courses dropped (if fees are assessed at the semester hour rate): 100%.

Drop Date

Percentage Refund

Days 0-7

Days 8-14

Days 15-21

Days 22-28

Over 28 days

NOTE: The drop deadline for grades and the drop deadline for refunds are NOT the same. All charges and refunds will be made to the nearest even dollar amount.

Refunds resulting from dropped courses will be made after the final audit at the end of the term.

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 assistantship students, 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 Admissions and Records and a validated fee receipt from the Bursar's Office.

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

Student Health Insurance. The University makes available, by contract with an insurance company, group health insurance expressly for students. The program is designed to supplement the care provided by the campus Student Health Service and provide basic benefits at low group premium rates. Primary emphasis is placed on hospitalization benefits since in-patient care is not provided on campus. Students not otherwise covered are urged to avail themselves of this or comparable insurance since paying for hospital care is the student'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 (or alternative coverage) is mandatory for international students, grades, transfers, and obtain applications from the Student Health Service or the Office of International Student Affairs. Except for international students, enrollment for insurance is not a part of registration for classes. 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 $50 each for uniforms and for Air Force ROTC courses are required to make a deposit of $75 each for uniforms issued to them. The unused portion of the deposits will be returned to the students after completion of the training.

Identification Card. ID cards, issued during registration or anytime during the year to all students, are prepared during registration of the first semester a student enrolls in the University and are validated each term thereafter. These cards are required for many purposes such as use of library facilities, check cashing facilities in the UTK Bookstore, and admission to various athletic, social, and cultural events. These cards are non-transferable and may not be duplicated.
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 or merit scholarship programs, The National Oceanic and Atmospheric Administration Corps, or as a full-time student at the University of Tennessee, Knoxville, opens 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, every student must complete the Free Application for Federal Student Aid (FAFSA). 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, "This is Tennessee: Investing in Your Future," available in the Financial Aid Office.

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 on financial need (some scholarships, grants, 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: February 1 for undergraduate entering freshmen.

TRANSFER STUDENTS

UTK Financial Aid applicants who have attended another college or university are required to have a Financial Aid Transcript sent to UTK whether financial aid was previously received. All financial aid applications must be reevaluated annually or in combination according to the student's academic progress toward a degree. Financial aid for students transferred from another college or university is 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: February 1 for undergraduate entering freshmen.

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CHALLENGE SCHOLARSHIPS AND GRANTS

Scholarships. The UTK scholarship program is made possible through funds provided by the University, outside foundations, estates, private businesses, civic groups, individuals, and alumni. The majority of these scholarships are coordinated by the Financial Aid Office. Some undergraduate scholarships for currently enrolled students are administered in the various schools and departments. Most scholarships are awarded to students who demonstrate strong academic achievement and a proven need for assistance. There is, however, an academic merit scholarship program which makes awards on the basis of academic achievement only. To compete for merit scholarships only, a student must be admitted or currently enrolled by the procedures outlined 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 Scholastic Aptitude Test (SAT). Academic achievement for currently enrolled and transfer students is judged by the applicant's 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. Most annual stipends range from $100 to $2100. Most scholarships are awarded for one year, with the recipients competing for scholarships each year of enrollment.

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 ON FINANCIAL NEED (SOME SCHOLARSHIPS, GRANTS, 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:

- February 1 for undergraduate entering freshmen.

TRANSFER STUDENTS

UTK Financial Aid applicants who have attended another college or university are required to have a Financial Aid Transcript sent to UTK whether financial aid was previously received. All financial aid applications must be reevaluated annually or in combination according to the student's academic progress toward a degree. Financial aid for students transferred from another college or university is 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: February 1 for undergraduate entering freshmen.

PERKS Scholarships. The UTK scholarship program is made possible through funds provided by the University, outside foundations, estates, private businesses, civic groups, individuals, and alumni. The majority of these scholarships are coordinated by the Financial Aid Office. Some undergraduate scholarships for currently enrolled students are administered in the various schools and departments. Most scholarships are awarded to students who demonstrate strong academic achievement and a proven need for assistance. There is, however, a competitive 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 procedures outlined 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 Scholastic Aptitude Test (SAT). Academic achievement for currently enrolled and transfer students is judged by the applicant's 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. Most annual stipends range from $100 to $2100. Most scholarships are awarded for one year, with the recipients competing for scholarships each year of enrollment.

PERKS Student Loans. Long-term loans are available to students who have a proven need for financial assistance. Loan repayment and interest payments on Perkins Student Loans are deferred as long as the individual is serving in the Armed Forces, Peace Corps, Vista, the U.S. Public Health Service, ACTION agency programs, The National Oceanic and Atmospheric Administration Corps, or as a full-time student of an institution exempt from service organization, or while (s)he is...
temporarily, totally disabled or providing care for a spouse who is temporarily, totally disabled. Repayment may be deferred for two years while the borrower is serving an internship which is required to receive 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 teacher of handicapped children, 15 percent of the total principal plus interest may be cancelled for the first and second year of teaching, 20 percent for the third and fourth years, and 30 percent for the fifth year. If after graduation the student becomes a full-time staff member in a head-start program which is operated for a period comparable to a full school year, 15 percent of principal plus interest may be cancelled for each year of service. Cancellation for up to 70% of the loan may be cancelled if the borrower serves as a full-time volunteer to the Armed Forces in an area of hostility. Up to 10% of the loan may be cancelled if the borrower serves as a full-time volunteer under the Peace Corps Act or the Domestic Volunteer Service Act for a period of four years.

An undergraduate may borrow an annual maximum of $1,500 to an accumulated loan of $9,000. Graduate level students may borrow an annual maximum of $3,000 to an accumulated loan of $18,000 (including any amount borrowed as an undergraduate). The above regulations and provisions of the Perkins Loan Program are correct as of December 1987 and are subject to change by federal legislative action.

The University Student Loan Program. 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 borrowed each year 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. Up to 70% of the loan may be cancelled if the borrower serves as a full-time volunteer under the Peace Corps Act or the Domestic Volunteer Service Act for a period of four years.

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<table>
<thead>
<tr>
<th>Scholarship Name</th>
<th>Fund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Florence Dorn Piano Scholarship</td>
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<tr>
<td>Leslie &amp; Rita Doss Athletic Scholarship</td>
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<tr>
<td>Dove Foundation Scholarship</td>
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<tr>
<td>Dow Chemical Scholarship in Chemical Engineering</td>
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<tr>
<td>F. M. Dryzer Memorial Math Scholarship</td>
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<td>Kleber E. Dunklin Athletic Scholarship</td>
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<td>Nate Dunn Memorial in Urban Forestry Fund</td>
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<td>Dupont Fellowship</td>
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<td>Dupont - Accounting Department Fund</td>
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<td>Dupont Science and Engineering/Grant</td>
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<td>Electrical Engineering</td>
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<td>East Tennessee OB-GYN Society Nursing Scholarship</td>
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<td>Eastman Kodak Scholarship in Architecture</td>
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<td>Eastman Kodak Graduate Fellowship in Industrial Engineering</td>
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<td>Dorothy &amp; Edgar Eaves Mathematics Scholarship</td>
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<tr>
<td>College of Education Alumni Scholarship</td>
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<td>Earl F. C. Dobie Fellowship in Minority Students Scholarships</td>
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<td>Economics Discretionary Fund</td>
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<td>B. E. Edwards Agricultural Scholarship</td>
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<tr>
<td>Electrical Engineering and Fellowships</td>
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<tr>
<td>Elk River Resources MBA Fellowship</td>
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<tr>
<td>Arnett A. Elliott Fund</td>
<td>J. M. Elliott Scholarship in History &amp; Political Science</td>
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<td>The Kenneth M. Elliott Chemical Engineering Scholarship</td>
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<td>Memorial &amp; Honor Scholarship Fund</td>
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<td>Emergency Student Aid Fund in Social Work</td>
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<td>Emergency Subsidise Aid Fund</td>
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<td>Emory River Land Company Scholarship</td>
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<tr>
<td>John B. Emperor Scholarship</td>
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<td>Engineering Scholarships and Fellowships</td>
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<td>Ernst and Whitney Scholarship</td>
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<td>James D. Estep, Jr. Scholarship</td>
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<td>Eta Kappa Nu Scholarship Endowment</td>
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<td>Exxon Educ. Foundation Scholarships</td>
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<td>Faculty Research Awards in Education</td>
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<td>David Hermann Memorial Scholarship</td>
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<td>Fred Fields Theatre Award</td>
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<td>Richard Filter Scholarship in Business</td>
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<td>Finner Family Scholarship Endowment Fund</td>
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<td>Charles Edward Ferris Engineering</td>
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<td>Endowment</td>
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<td>Grace C. Polin Memorial Scholarship</td>
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<td>Henry E. Ford Agriculture Scholarship</td>
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<td>The Foreign Studies Enrichment Fund in the School of Accounting</td>
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<tr>
<td>Robert L. Forester Memorial Scholarship</td>
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<tr>
<td>E. Bruce &amp; Mary E. Foster Scholarship</td>
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<tr>
<td>Liston Fox Memorial Scholarship Fund</td>
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<tr>
<td>Liston Marshall Fox Scholarship Fund</td>
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<tr>
<td>Thomas E. &amp; Elizabeth Fox Fund</td>
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<td>Julius &amp; Henrietta Freed Memorial Scholarship</td>
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<td>Katherine &amp; Helen Fried Scholarship</td>
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<tr>
<td>French Educational Fund</td>
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<td>E. Guy Frizel Scholarship Fund</td>
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<tr>
<td>Gideon Fryer Scholarship Fund</td>
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<tr>
<td>Joe Frye Endowment Fund in Transportation</td>
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<td>FSNFSA Memorial and Honor Scholarship</td>
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<td>General Sciences Scholarship Fund</td>
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<tr>
<td>Gottfried Galston Scholarship in Piano</td>
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<tr>
<td>Patricia &amp; Joe Gamble Athletic Scholarship</td>
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<tr>
<td>Laurence Gardiner Agriculture Scholarship Fund</td>
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<tr>
<td>E.E. Garrison Excellence Fund in Marketing</td>
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<tr>
<td>GEM Consortium Fellowship</td>
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<td>General Electric Scholarship</td>
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<td>General Engineering Scholarship</td>
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<td>General Engineering Scholarship Fund</td>
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<td>Edgar G. Guenther Scholarship</td>
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Purity Dairies Scholarship
R. David Gill Scholarship Fund
Ralph F. Quarles Scholarship
Janene Jones Quillen Memorial Scholarship
Rachelle Scholarship and Fellowship in Ornamental Horticulture
Rachelle Scholarship and Fellowship in Metals
Ralston Purina Scholarship
Virginia Randolph Scholarship Fund
William T. Ray Scholars and Fellowship
Regan Undergraduate Scholarship
Alma-Kat Scholarship
Reeder-Siler Scholarship Endowment Fund
Re-Entry Women's Fellowship Fund
Rehabilitation Corp of Tennessee Scholarship
Rehabilitation Corp of Tennessee in Vet Med
Republic Newspapers Inc Scholarship Fund
Reynolds Pride in "Tobacco" Scholarship
S. Herbert Rhea Endowment Fund
J. Clark Rhodes Fellowship Fund
Malcolm Rice Architecture Award
Ridgewood PHC Inc.
Vickie E. Rigby Scholarship Fund
Stephen D. Rimmer Memorial Scholarship Fund
Chris Ritts Scholarship Fund
Roane County Home Demo Scholarship
Judson Heil Robertson Award
Vctor M. Robertson Award Fund
B. Wyatt & H. Robinson Memorial Scholarship Fund
Thomas & Emma Robinson Scholarship
Roddy Upperclassmen Scholarships
Fred M. Roche Scholarship Fund
Fred M. Roddy Merit Scholarship
King W. Rogers, Jr. Scholarship
Ralph & Louise Rogers MBA Fellowship
Douglas V. Roseberry Memorial Fund
Callis Wood Ross Scholarship
Touche Ross and Company Scholarship
Rusell Strong Medal
Russell Scholarship Fund
Dr. J. E. Salsbury Fund Vet Med
SAM Scholarship
Rhonda Karen Sasser Scholarship
Jane Savage Scholarship
Schlumberger Collegiate Awards
Schneider-Horner Award Vet Med
Scholars Bowl Scholarship
School of Architecture Scholarship
School of Social Work Alumni Association Scholarship
Scottish Rite Choral Arts Scholarship
Benedorad Schmitt Scholarship
Scripps-Howard Pyle Memorial Scholarship
Alfred Scrivner Athletic Scholarship
Dr. Roy L. Seeds Athletic Scholarship
Ruth Sellards Tribute Award Fund
Emile Seilaz Scholarship Fund
Louis & Lydia Seilaz Memorial Scholarship
Louise & Aileen Seilaz Scholarship Fund
Mary Louise Sealaz Scholarship
1986 Senior Class Scholarship
Sevier County Scholarship in Organ
Sevier County Swim Scholarship
Sevier Farmers Co-operative Agr. Scholarship
Richard Sexton Rugby Club Scholarship
Arron J. Sexton Scholarship
Botany
Michael Shaffer Memorial Fellowship
Endowment in Accounting
Dr. & Mrs. David L. Shea Scholarship Fund
Sheeler Writing and Research Award
Shell Assist Grants - Business
L. R. Shobe Scholarship Fund
Beverly Shrode Memorial Agricultural Fund
Siagal Bible Student Development Fund
Sigma Alpha Iota Sorority Scholarship
Tom Siler Scholarship in Communication
Col. Lawrence Simcox Memorial Scholarship
Howard Simmons Agriculture Scholarship Fund
Charles S. Simms Scholarship Fund
Carlos C. Tuggle Scholarship
Irvong G. Simpson Award Fund Robert & Jean Sinclair Scholarship Award
The Elizabeth Z. Smith Scholarship
Charles D. Stovall Scholarship
John Milton Snoddy Scholarship Fund
Social Work Forward to 50 Scholarship
Social Work Alumni Scholarship
Society of Professional Journalists Scholarship Fund
Soils Judging Fund
Southern Shipper & Motor Carrier Council Scholarship Fund
Southern Title Insurance Company Real Property Prize
W.H.H. Southern Memorial Law Scholarship
Southern-Potters Endowment in Business
Andrew W. & Marcia K. Spickard Engineering Scholarship Endowment Fund
Caesar & Edith Stair Music Education Fund
A. E. Staley Mfg. Co. Ph.D. Fellowships
Luther T. Stanley Athletic Scholarship Fund
E. Eugene Stansbury Fund
Sadie K. Stanton Scholarship Fund
Statistics Excellence Fellowships
Statter Foundation Scholarship Fund
Stauss Scholarship Fund in Chemical Engineering
Ruth Stephens International Relations Award Fund
Ruth Stephens Scholarship Fund
Stephens & Hoffman Scholarship
Thomas Stevens Athletic Scholarship Fund
Pauline Harsson Stockton Scholarship
Stokely Institute for Liberal Arts
William Stokely Foundation MBA Fellowship
William B. Stokely, Jr. Scholarship Fund
William B. Stokely, Jr. Scholarship in Education
Dewey Stollars Scholarship Fund
MSC/Elsa Walburn Stonch Scholarship
Stouffer Corporation Scholarship Fund
Joe Sullivan Ill Scholarship
Glenn G. Summers Agriculture Fund
Supplemental Education Opp Grant IJC
Swan Brothers, Inc. Scholarship Fund
Swimmers Ex-Varsity Scholarship Fund
George D. Swingie Graduate Fellowship in Geology Endowment
Tau Sigma Delta Design Competition
Taylor Scholarship in Transportation
Judge George C. Taylor Memorial Scholarship
Jerome G. Taylor Memorial Athletic Scholarship Fund
TEDP Scholarship in Business
Jane Temple Memorial Scholarship Fund
Tenneco Inc. Scholarship Fund
Tennessee Assistance Corporations
Tennessee Association Ag Agent & Specialists
Tennessee Council of Coop Scholarship
Tennessee Dairy Prod Assoc Scholarship
Tennessee Farmers Mutual Ins. Scholarship
Tennessee Farmers Co-op Scholarship
Tennessee Federation of Federal Land Bank Association Scholarship
Tennessee Federation of Garden Clubs
Horticulture Scholarship
Tennessee Flower Growers Association Scholarship
Tennese Hotel/Motel Association Scholarship
Tennessee Howard Johnson Food and Lodging Scholarship
Tennessee Institute For Education Association Scholarship
Tennessee Road Builders Association Scholarship
Tennessee Tomorrow Law Scholarship Fund
Tennessee Vegetable & Fruit Growers Association Scholarship
Daniel H. Testarman Memorial Scholarship
Texas Instrument Graduate Trainee
Escar Thompson Memorial Fund
Mr. Jim Thompson Athletic Scholarship
William M. Tipton Scholarship
Townsend-Kefauver Memorial Fund
Willburn B. Townsend Memorial Scholarship Fund
Tri City Metro Ad Fed Scholarship Fund
Stephen R. Trotter Memorial Scholarship Fund
R. T. Zwickler Graduate Fellowship
Unisys Scholars - Computer Science
United Handicapped Worker Scholarship
University Evening School Scholarship Fund
US DOT Fellowship - Bowen
US Students Abroad Scholarship Fund
UT Band Scholarship Fund
UT Hospital Auxiliary Nursing Scholarship
UTK Architecture Scholarship Fund
UTK Band Scholarship Fund
UTK Engineering Scholarship Fund
UTK General Scholarship Fund
UTK Liberal Arts Scholarship
UTK Music Department Scholarship Fund
UTK Piano Scholarship Competition
UTK Senior Greek Prize
UTK Tourism, Food and Lodging Scholarship
UT Singers Scholarship Fund
R. R. Vance Scholarship in Education
Lee L. Verstandig Scholarship
Veterans Emergency Loan Fund
Victorian Union Line Scholarship
John M. & Manora C. Viles Scholarship Fund
Vinylex Corporation Scholarship
Vocational Agriculture Education Fund
Frederick B. Vreeland Scholarship Fund
Dwight R. and Kate Reagan Wade College Scholar's Endowment Fund
Tom & Pat Sade Scholarship
George A. Wagoner Graduate Scholarship in Business Education
Fred Collins Walker Scholarship Fund
Pauline C. Walker Memorial Prize
Dean Frank B. Ward Memorial Scholarship Fund
Charles & Myrtle Warner Memorial Law Scholarship
Harold C. Warner Centurion Scholarship
Watauga Area Mental Fellowship
Eugene & Mildred Waters Memorial Scholarship Fund
Edwin F. Zwickler Memorial Scholarship Fund
Irina B. Witt Memorial Scholarship Fund
Singletone Wofford Endowment
James Wolfkiel Scholarship in Graphic Art
Margaret Woodruff Award Fund
Arthur Brownlow Wood Memorial Scholarship Fund
George & Martha Wool Scholarship Fund
Chancellor Glenn W. Woodlee Scholarship
John Wooten Scholarship Endowment Fund
Richard Wooten Scholarship Fund
Working Students Assistance Fund
Senator J. Parks Worley Scholarship Fund
Jack Wright Memorial Scholarship Fund
Gerti Wunderlich Fund in German
Jack York & Scott Kendell Scholarship in Finance
Zdyrka Children Memorial Scholarship

HONORS AND AWARDS

DEAN'S LIST
Public announcement of students passing a semester's work "Summa cum laude (3.80 through 4.00), "Magna cum laude" (3.65 through 3.79), "Cum laude" (3.50 through 3.64). To be eligible, a student must complete at least 12 hours, not counting work taken on a satisfactory/no credit basis. 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.

VICTOR M. DAVIS AWARD. 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 scholarship medals and embroidered certificates to sophomore, junior, and senior students in the Department of Animal Science who are of good moral character and rank scholastically in the top 10 percent of their class.

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

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

M. Jacob Animal Husbandry Award
Given by East Tennessee Packing Company.

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.

J. B. MADDEN MEMORIAL FOUNDATION. 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 junior, sophomore students 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

Ray and Mary Evelyn Andrus Award. Awarded for excellence in second year student.

NELL MANN SCHOLARSHIP IN ART. Awarded to outstanding student.

HUBERT BEBB SCHOLARSHIP. Awarded to outstanding design student at end of second year.

GENERAL SHALE PRODUCTS CORPORATION FELLOWSHIP Fund. Scholarships awarded to scholastically outstanding fifth year students.

G. S. C., Incorporated, Architects and Planners Technical Scholarship Award. Awarded each Spring to a first year student excelling in draftingmanship.

M. K. DESIGN MINORITY SCHOLARSHIP. Awarded each Spring to outstanding freshman minority student.

NATIONAL ASSOCIATION OF WOMEN IN CONSTRUCTION SCHOLARSHIP. Awarded every other year to an outstanding third, fourth or fifth year student from East Tennessee.

PELLA TRAVELING SCHOLARSHIP. Awarded to outstanding third year student in design.

ALMA AND HAL REAGAN SCHOLARSHIPS. Awarded to promising minority student.

MALECON RICE ACADEMIC AWARD. Awarded annually to the junior student showing most improvement in design studio.

ED MEIERS MEMORIAL SCHOLARSHIP. Funded by the Tennessee Foundation for Architecture for third, fourth or fifth year student from East Tennessee Chapter or Watauga Chapter of A.I.A.

JIM BOOHER MEMORIAL SCHOLARSHIP. Funded by the Tennessee Foundation for Architecture for third, fourth or fifth year student from East Tennessee Chapter or Watauga Chapter of A.I.A.

COLLEGE OF BUSINESS ADMINISTRATION

BETA GAMMA SIGMA AWARD. 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. 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.
awarded to the outstanding senior in recognition of scholarship and broadcasting majoring in journalism.

In Journalism. Awarded to juniors or seniors in Advertising. Awarded to juniors or seniors showing exceptional professional promise.

The Arthur Brownlow Wood Memorial Award. Given to an outstanding junior or senior in the Department of Journalism who has a special interest in a career in community journalism.

John P. Hart Scholarship in Broadcasting. Given to a junior or senior in the Department of Broadcasting who has demonstrated outstanding professional promise.

Irving G. Simpson Award. Given to an outstanding junior or senior in the Department of Broadcasting who has demonstrated outstanding academic achievement and professional promise.

Escar Thompson Memorial Scholarship. Given to a junior or senior in the School of Journalism who has exhibited outstanding professional promise.

COLLEGE OF EDUCATION

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 to a branch member whose performance scholastically 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 Scholastic Award. Given to chemical engineering junior who attained highest scholastic average in first two years. Certificate and handbook.

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

Allen R. Cox Memorial Scholarship. Given to an outstanding junior or seniors in the School of Journalism who have shown exceptional professional promise.

Advertising Scholarship Fund. Given to one or more students in the Department of Advertising based on academic achievement and professional promise.

Chester A. Molley Memorial Scholarship. Given to an outstanding member of the staff of The Daily Beacon.

John P. Hart Journalism Award. Given to a junior or senior in the School of Journalism who has demonstrated interest in journalism as a career.

Horace V. Wells Jr. Scholarship. Given to an outstanding junior or senior in the School of Journalism who has special interest in a career in community journalism.

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

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

Society of Professional Journalists Scholarships. Given by East Tennessee professional chapter of Sigma Delta Chi to news-editorial journalism or broadcasting textbooks/funds. Funds are raised by the chapter's annual Front Page Follies and presented in the names of Tom Silers and Estes Thompson.

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

William Way, Jr. Memorial Award. Gold medal or key to senior transportation major with highest academic average.

Zeta Lambda Chapter of Alpha Kappa Psi. Professional business fraternity, awards annually the Alpha Kappa Psi Scholarship Award to the male student pursuing a degree in business who has attained the highest scholastic average for three years of collegiate work in this University.

COLLEGE OF COMMUNICATIONS

Karl and Madira Bickel Scholarships. Freshman, upperclass and doctoral scholarships. Open to students showing academic performance (3.00 or B or better), professional promise, and need.

Edward J. Meeman International Communications Fellowships. To two outstanding graduate students from other countries.

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

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

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

Myron G. Chambers Scholarships. To one or more outstanding undergraduates in the Department of Advertising.

James Wolfkiel Scholarship. Given to a student planning a career in print journalism.

The University of Tennessee Eastman Scholarship in Journalism who has exhibited outstanding professional promise.

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

Sammie Lynn Puett Award. Given to outstanding student in the public relations sequence in the School of Journalism.
based on need, given by the Department of Industrial Engineering to a senior.

Billy J. and Sylvia F. Moore Scholarship Fund. A cash award given to one or more upperclass students majoring in electrical engineering, preferably seniors who have participated in the engineering coop 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 cash award presented annually by the Tennessee Roadbuilders Association to an outstanding civil engineering student.

John F. Seilaz Memorial Award. By Tennessee Pi Tau Eta Chapter of Pi Tau Sigma to the student in mechanical and aerospace engineering graduating with the highest academic record.

Kimley-Horn Scholarship in Civil Engineering. Proctor & Gamble Minority Chemical Engineering Scholarship Fund. Awards can be made to minority chemical engineering students who are either United States 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.

Texas Philanthropic Foundation University of Tennessee Book and Supply Store Award. An electronic calculator awarded each term. Chosen by departmental committees in rotation. Given to an upperclass student on the basis of need and demonstrated academic performance.

WATTec UT Engineering Scholarship

American Express Undergraduate Scholarship. Awarded to tourism, food and lodging students.

Catherine Burton Chi Omega Scholarship. Awarded to sophomores and upperclass students.

Dorothee H. Barton Scholarship. Awarded to an outstanding junior in all majors except tourism, food and lodging administration. Variable.

Dottie Sanders Scholarship. Awarded to an interior design student.

D.W. Profitt Foundation Scholarship. Awarded to merchandising majors.

Edward C. and Catherine D. Cifers Scholarship. Awarded to students in all majors.

Farr Credit Bureau, Region IV. Awarded to entering freshman from any county in Region IV.

Frank and Ruth Liggett DeFriese Scholarship. Awarded to a home economics student annually.

F. Dwight McDonald Scholarship. Awarded to an entering freshman from any county where a White Store is located.

Hawkins County Farm Bureau. Awarded to a freshman from Hawkins County.

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

Jane Savage Scholarship. Awarded to nutrition or food science students.

Jessie W. Harris Scholarship. Awarded to junior and senior with highest scholarship records.

Joseph K. Hach Family Scholarship. Awarded to tourism, food and lodging students.

Knoxville A la Carte Scholarship. Awarded to tourism, food and lodging students.

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

Louis Sr. and Lydia B. Seilaz Memorial Scholarship. Awarded to child and family studies students.

Nellie Crooks Award. Award to an outstanding student.

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

Roane County Council of Home Demonstration Clubs. Awarded to freshman or transfer student from Roane County High School.

Shelby Williams Scholarship. Awarded to interior design and tourism, food and lodging majors from Lakeway (Morristown) area; may be awarded to out-of-state students.

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

Sylvia and Bill Moore Scholarship. Awarded to a senior in child and family studies.

Tennessee Rehabilitation Corporation Scholarships. Ten.

University of Tennessee General Scholarship. Variable.

White Stores Scholarship. Awarded to an entering freshman from any county where a White Store is located.

COLLEGE OF HUMAN ECOLOGY

Akima Club Interior Design Scholarship. Awarded to female, junior students enrolled in interior design. In-state tuition.

John M. Allen Mathematics Prize. Medal, to outstanding freshman mathematics student. Prize is determined by competitive examination.

Bain-Swiggett Poetry Prize. For excellence in writing conventional forms of English poetry.

Philo Sherman Bennett Prize. Established by the late Honorable William J. Bryan, cash award to student submitting best essay discussing principles of free government.

Bilogia Award. Plaque, to the outstanding biology senior.

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

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

Chi Omega Prize. Given by Pi Chapter of Chi Omega to the senior woman majoring in the social sciences, who has the greatest potential as a leader.

Dorothea and Edgar D. Eaves Outstanding Teaching Award and Summer Fellowship Awards. Awarded each year to the G. T. A. in mathematics with previous teaching experience who is named the outstanding teacher of the year in his or her group. Cash award each year to beginning G. T. A. in mathematics who is the named the outstanding teacher of the year in his or her group. One or more awards are made to qualified high school teachers who wish to continue their training in mathematics by attending summer school at UTK.

Amiet A. Elliott Award. Established by the Department of Political Science to honor Amret A. Elliott and promote scholarship in Political Theory. This award or scholarship 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.

Maud Calloway Hayes Scholarship. Variable scholarship to senior history major with special interest in U. S. history.

History Department Scholarship. Given to a history major with need.

John C. Hodges Scholarships. Each year, ten of the best English majors earn Hodges Merit Scholarships, which pay full tuition. One of these is for an incoming freshman, two are for sophomores, three for juniors, and four for seniors. Applications are not accepted; selection is made by a departmental committee on the basis of superior academic performance in English.

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

Knickerbocker Poetry Prize. For excellence in writing English poetry. Founded by the late Honorable William J. Bryan, cash award to student submitting best essay discussing principles of free government.

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

Maud Calloway Hayes Scholarship. Variable scholarship to senior history major with special interest in U. S. history.
Mrs. J. Harvey Mathes, Tennessee A. D. American History Scholarship. Given to a woman student selected by the Department of History. 
A. D. Melaven-Rhenium Scholarships. For students in the Bachelor of Science in Chemistry curriculum. Established from funds obtained by the sale of rhenium metal and rhenium compounds prepared by procedures devised by Professor A. D. Melaven. Cash awards given each term to outstanding students.
Judith H. Robertson Award in Analytical Chemistry. Endowment established by family and friends of the late Professor Robertson. Given to a student with highest scholastic average in sophomore analytical chemistry courses.
Bernadette Schmitt History Scholarships. Two scholarships for academic excellence and one based on financial need. History majors only.
Ruth Stephens Award in International Relations and International Law. Established by the late Mr. and Mrs. Oscar Handly, Knoxville. Given to the student showing greatest knowledge of international relations or international law.
Judson H. Robertson Award in Analytical Chemistry. Endowment established by family and friends of the late Professor Robertson. Given to the student showing greatest knowledge of international relations or international law.
Knoxville. Given to the student showing excellence and one based on financial need.

Chemistry curriculum. Established from funds obtained by the sale of rhenium metal and rhenium compounds prepared by procedures devised by Professor A. D. Melaven. Cash awards given each term to outstanding students.

Additional criteria pertain to number of hours taken and number of transfer hours/previous academic performance for transfer students. Candidates are required to show evidence of their scholarship before initiation.

HONORARY AND PROFESSIONAL SOCIETIES
A number of honorary and professional societies have chapters at The University of Tennessee, Knoxville. Membership in these organizations is generally based on the initiate's good character, proficiency in the chosen field, leadership characteristics, and academic record.
Those honorary societies, both national and local, with chapters at UTK are:
Alpha Chi Sigma, for chemical engineering and chemistry students. Student must have a grade point average of 2.5 in chemistry and/or chemical engineering combined and 2.5 in all academic work and must have been enrolled in this school for at least one semester of history. Students are elected by others in the local chapter.
Alpha Epsilon Delta, for students preparing for study in medicine. Students with minimum 3.0 average in all courses may be elected at the end of their first year in the University. They also may be initiated in the next year if appropriate overall average has been maintained.
Alpha Mu Chapter, Eta Sigma Gamma. Students with a major or minor in health and safety or academic work with and average grade of 2.0 before being eligible for initiation.
Alpha Pi Mu, for industrial engineering students. Prospective members are chosen from the upper one-third of the senior class and upper one-fifth of the junior class. A minimum 2.5 average is required.
Alpha Zeta, agricultural fraternity for juniors and seniors. Prospective members must be among the upper one-third of their respective class and must show leadership ability.
Beta Alpha Psi, for accounting students. Any undergraduate or graduate accounting major in advanced accounting subjects and having a minimum B-minus average in all subjects, is eligible for active membership.
Beta Gamma Sigma, national business honorary society for undergraduate students with a major in a College of Business Administration curriculum. Additional criteria pertain to number of business administration credit hours taken and number of transfer hours/previous academic performance for transfer students. MBA students must be in the top 20 percent of graduating class, and DBA students must complete all degree requirements with a minimum GPA of 3.50.
Chi Epsilon, for civil engineering students. Junior and senior civil engineering majors ranking in the highest one-third of their respective class are eligible for membership.
Delta Nu Alpha, for transportation students. Prospective members must have completed the basic transportation courses and have a minimum 2.5 average.
Delta Pi Epsilon, for business education graduate students. Prospective members must have a minimum 3.4 average for nine hours of graduate work in business education. Candidates are required to show evidence of their scholarship before initiation by presenting a talk, research abstract, or written paper to the group.
Delta Sigma Pi, professional business fraternity for students enrolled in the College of Business Administration. A minimum of 30 semester hours of University credit with a scholastic average of at least 2.5 is required for initiation.
Delta Sigma Phi, for students majoring in geography.
Delta Sigma Pi, professional business fraternity for students enrolled in the College of Business Administration. A minimum of 30 semester hours of University credit with a scholastic average of at least 2.5 is required for initiation.
Delta Sigma Phi, for students majoring in classical languages. Membership is open to students who have attained at least a 3.0 average in Latin or Greek courses.
Gamma Beta Phi, for students majoring in education. Membership is open to students who have attained at least a 3.0 average in all fields of study. Induction is held in the fall for invited students who have achieved Junior or Senior standing and who have maintained a cumulative grade point average of 3.4.
Iota Lambda Sigma, for industrial education students. No one may be initiated until he has acquired a minimum of 9 hours of industrial education courses with at least a 3.0.
Kappa Delta Pi, for professional business for professionals and students in education. A minimum 3.5 grade point average is required. The society recognizes outstanding contributions to field of education. Membership is by invitation.
Mortar Board, for senior students. Members are elected from students with a minimum 3.0 average for three years of University studies.
National Slavic Honor Society (Dobro Slovo), for students in their third year of study of Slavic literature, culture, or related subjects with a minimum average grade of 85 percent or its letter or point equivalent in the subject area and an 80 percent overall average. Members are chosen from the undergraduate and graduate students and faculty of the institution.
Omicron Delta Epsilon, honor society in economics for students and faculty. Student members must have a minimum 3.0 overall average.
Omicron Delta Kappa, for junior and senior students.
Omicron Nu, for home economics students.
Order of the Coif, for law students.
Phi Alpha Delta, for law students.
Phi Beta Lambda, for students preparing for study in medicine. Students with minimum 3.0 average in all courses may be elected at the end of their first year in the University. They also may be initiated in the next year if appropriate overall average has been maintained.
Phi Beta Phi, for students majoring in biology. Membership is open to students who have attained at least a 3.0 average in all fields of study. Induction is held in the fall for invited students who have achieved Junior or Senior standing and who have maintained a cumulative grade point average of 3.4.
Phi Delta Kappa, the second oldest national academic honorary society, for liberal arts juniors and seniors who are candidates for...
either the Bachelor of Arts or the Bachelor of Science degree. Grade point average varies with number of hours completed; minimum is 3.50. At least 60 hours must have been earned at UTK. Students must have completed the second college year course (or equivalent) in a foreign language. Election takes place in October and April. For detailed statement of requirements, inquire in Liberal Arts Student Academic Affairs Office. 218 Ayres Hall.

Phi Chi Theta, professional fraternity for women interested in a business career. Any female student enrolled in the College of Business Administration or specializing in business and/or economics, and who has at least a second semester freshman and has the all-student average is eligible for membership.

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

Phi Delta Phi, for law students.

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

Phi Kappa Phi, national honor association in education. Open to juniors and seniors with a minimum of 3.2 GPA and graduate students with a minimum 3.5 GPA. Membership is by invitation.

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

Pi Sigma Alpha, for music students. Members are elected to associate membership.

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

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

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

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

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

Pi Lambda Sigma, for students in music and music education. Membership is by invitation.

Pi Alpha Lambda, for students in music and music education. Membership is by invitation.

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

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

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

Sigma Delta Chi, professional journalism society. Active membership shall be limited to journalism and broadcasting majors having at least a 2.3 overall grade average and having completed at least 30 hours. Prospective members must have shown a 2.5 overall average is required.

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Sigma Delta Epsilon, professional music fraternity for women interested in music. A 2.5 overall average is required.

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ADMISSION TO THE UNIVERSITY OF TENNESSEE, KNOXVILLE

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

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

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 informational 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.

FRESHMAN ADMISSION

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

1. the student has graduated from high school; and
2. the total of attempted college-level credit work at an accredited institution after graduation from high school has been less than 12 hours, excluding summer school and college courses taken while still in high school.

Students are encouraged to apply as early as possible. Early admission contributes to better orientation, course planning, class scheduling and financial aid consideration. High school students planning to apply as freshmen should submit applications as soon as possible after completion of the junior year. Applications for admission are available from many secondary school guidance/counseling offices and from the Office of Admissions, UTK, 320 Student Services, Knoxville, TN 37996-0230.

The University seeks to admit those students who can provide evidence of the intellectual performance and potential that will permit them to benefit from UTK programs. In 1986 the freshman class, had an average ACT score of 21.4 or an average SAT of approximately 1000 and a high school average of 3.0 on a 4.0 scale.

A prospective student must have completed at least:

- four (4) units of English;
- three (3) units of math including two (2) units of algebra and one (1) unit of advanced math, trigonometry, geometry, or calculus (The College of Engineering requires 3 1/2 years of math including trigonometry and geometry as prerequisites for all courses. The School of Architecture require 3 and 1/2 years of math including trigonometry and geometry as prerequisites for all offered courses for majors.);
- two (2) units of natural sciences including at least one (1) unit of biology, chemistry, or physics;
- one (1) unit of American history;
- one (1) unit of European or world history or world geography;

Applicants with foreign language deficiencies from those high schools that do not offer the required two years of a single foreign language may, with proper approvals, be admitted to the University. However, this deficiency must be removed during the first two years (60 semester hours) of University work; courses taken to satisfy foreign language deficiencies may be taken only as electives.

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

1. Have a final transcript of all high school credits sent to the Admissions Office. If any courses have been taken for college credit, the institution(s) granting credit must be contacted and asked to send an official 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 (GED) Test also must have the GED scores sent. Older than average students may be given special consideration. (See re-entry student applicants below.)

2. Send the score report of the American College Testing program (ACT) or the Scholastic Aptitude Test (SAT) to the Admissions Office. The score report is a necessary part of the application.

3. Pay a nonrefundable application fee of $15.00.
Transfer applicants must apply for admission as a transfer student. Students desiring to transfer to UTK must file an application for admission as a transfer student. Students desiring to attend UTK on an interim basis for only one semester must submit, in addition to the application form a letter of good standing from the institution at which enrolled.

Since academic records will not be available at UTK for visiting students, use of UTK courses in a visiting student's degree program is a matter to be decided by the home institution. Academic advising will be limited to information about courses in which the student enrolls and may be obtained from the academic departments. Visiting students must have the required background (prerequisites) and meet all other course requirements. Academic overloads will not be permitted.

Re-entry student applicants:
A re-entry student is one who has not been enrolled in school for 3 years or more prior to making application for admission to UTK. Freshman re-entry students should submit high school transcript(s) to the Admissions Office. Transfer re-entry students should submit high school transcript(s) and transcripts of all previous college work. ACT/SAT scores are not required for either freshman or transfer re-entry students. Admissions decisions will be made on an individual basis. Exceptions to the admission criteria may be made for those applicants who demonstrate sufficient preparation.
No applicant who has attended UTK will be considered a re-entry student. Former UTK students should follow readmissions procedures as described elsewhere in 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. The Admissions Office processes all applications, regardless of intended registration location. Non-degree students must show evidence of satisfactory preparation for the courses they wish to take. Ordinarily the high school class of a non-degree student must have graduated. Former University of Tennessee students may not be admitted in this category prior to the receipt of a bachelor's degree.

If there is a change in educational goals leading to interest in a degree program, a non-degree student must meet all previously indicated transfer, admission, or college association requirements for admission to degree seeking. Students may enroll in more than 30 semester hours of accumulated college credit (from all institutions attended) may be used by a non-degree student in any subsequent degree program at UTK.

SENIOR AND DISABLED APPLICANTS

Persons 60 years of age or older and/or totally disabled persons who are residents of Tennessee may audit courses without payment of fees if space is available in the individual class. Persons 65 years of age or older or totally disabled persons who are residents of Tennessee may enroll in courses for credit at reduced fees. Interested persons should inquire at The University of Tennessee Evening School, 451 Communications Building, during regular working hours.

ACADEMICALLY TALENTED HIGH SCHOOL STUDENTS

Academically talented high school students enrolled in grades 9, 10, 11, and 12 in public or private school in Tennessee may audit courses without payment of fees if space is available in the individual class. Persons 65 years of age or older or totally disabled persons who are residents of Tennessee may enroll in courses for credit at reduced fees. Interested persons should inquire at The University of Tennessee Evening School, 451 Communications Building, during regular working hours.

FRESHMAN EARLY-ADMISSION STUDENTS

Freshman early-admission students are those who have completed the junior year of high school, have a grade point average of at least 3.50 and have an ACT composite of 28 or above or SAT of 1150 or above. Application is subject to review and approval by the Director of Admissions following an interview. For additional information and scheduling of an interview, interested students should contact the Office of Admissions, 320 Student Services Building.

EXCEPTIONS TO ADMISSIONS REQUIREMENTS

The University requirements for the various categories of admission are thought to be reasonable and consistent with good educational practice. Thus, these requirements are not normally waivered or modified for any applicant, except as specifically noted. However, unusual circumstances sometimes exist. If a potential student thinks that some part of the requirements for the category sought should not apply as stated, he/she should write a letter to the Director of Admissions. The letter should state clearly the specific circumstances prompting the appeal and what changes in the stated requirements are sought. The reply to this letter will indicate whether any exception to the requirements will be made. The reasons for the decision, and will describe any further action which the applicant might take. The Dean of Admissions and Records has the prerogative of making exceptions on the minimization in good standing who do not show high aptitude in certain scholastic skills but show other indications of ability to progress through UTK and earn a degree.

DEADLINES FOR APPLICATIONS

Completed application materials and supporting credentials for first time freshmen and transfer students must be received in the Office of Admissions no later than the following dates: July 1 for Fall Semester; November 1 for Spring Semester; and April 1 for Summer Term. Any applicant who wishes to be considered for financial aid for the school year must submit completed application by March 1.

Former students who have been dropped from the University for academic deficiency must apply for readmission and provide supporting materials to the Director of Readmissions no later than six weeks before the start of classes of the semester they wish to enter. Former students who left the University in good standing who have not registered for at least two semesters must apply for readmission no later than three weeks prior to the start of classes of the semester they wish to enter. The readmissions application for Summer Term for students in good standing is one week prior to the start of classes.

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

Students are classified as in-state or out-of-state for the purpose of paying University fees. The classification is subject to review and may be reviewed as the result of submission and may be reviewed as the result of submission of a subsequent fee classification questionnaire. Notice of classification is sent back shortly after the student applies to the University. The determination is made on the basis of the Regulations established by the Board of Trustees, which state that all public institutions of higher education in Tennessee adopt uniform classification rules. Basically, these Regulations state that (1) students receiving parental support are classified according to parental domicile, and (2) an emancipated student independent of parents may establish in-state classification by producing satisfactory evidence of Tennessee domicile with proof that the move to Tennessee was not primarily for obtaining educational opportunities of spouses, dependents, or spouses. Forms and copies of the Regulations for undergraduates may be obtained from the Residency Clerk, 320 Student Services Building. Additional appeals may be directed to the Fee Classification Coordinator, Room 320 Student Services Building. If a student classified out-of-state applies for in-state classification and is reclassified, the in-state classification shall be effective as of the date on which reclassification was sought. However, out-of-state tuition will be charged for any term during which reclassification is sought and obtained unless application for reclassification is made to the classification officer on or before the last day of regular registration of that term. Rule 1720-1-180.

SPECIAL STATE AND FEDERAL LAWS FOR EDUCATIONAL PURPOSES

AMERICAN HISTORY

Effective July 1, 1978 and afterwards, all students receiving a bachelor's degree must have completed one unit of 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 49-323).

EOE/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 of Affirmative Action, 320 Student Services Building, Room 320, Knoxville, TN 37996-0144, 974-2498. Charges of violation of the above policy should also be directed to the Director of Affirmative Action.
UNDERGRADUATE GRADES

<table>
<thead>
<tr>
<th>Grade</th>
<th>Performance</th>
<th>Level</th>
<th>Quality Points</th>
<th>Per Semester</th>
<th>Hour of Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Superior</td>
<td>4</td>
<td>3.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B+</td>
<td>Very Good</td>
<td>3.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Good</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>C+</td>
<td>2.5</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Satisfactory</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Unsatisfactory</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Failure</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GRADES OF INCOMPLETE

Under extraordinary circumstances and at the discretion of the instructor, an "I" (incomplete) may be assigned to a student whose work is satisfactory but who has not completed a portion of the course. The term for removal of the "I", including the time limit for removal of the "I", will be decided by the instructor. It is the responsibility of the student receiving an "I" to arrange with the instructor whatever action is needed to remove the grade at the earliest possible date, and in any event, within one year of the assignment of incomplete. The "I" grade does not carry quality points and is not computed in the grade point average. If the "I" grade is not removed within one calendar year or upon graduation, it shall be changed to an "F" and count as a failure in the computation of the grade point average. A student need not be enrolled at the University to remove a grade of incomplete.

GRADES THAT DO NOT INFLUENCE GRADE POINT AVERAGE

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

NC (no credit) indicates failure to complete a course satisfactorily when taken on an S/NC basis.
S (satisfactory) is assigned for C or better work when a course is taken on an S/NC grading basis.
W (withdrawal) is assigned in courses when a student has officially withdrawn from the University. Registration withdrawn prior to January 1, 1975 may request that such information not be released.

SOCIAL SECURITY NUMBER USE

The University of Tennessee, Knoxville, requires assignment of an individual student number for internal identification of each student's record. The University began using the social security number as the student identification number prior to January 1, 1975; therefore, the federal law allows continued use of this number. However, if a student does not desire the social security number or an assigned number, are used administratively within the University only and are not given to third parties without expressed consent of the student concerned.

STATE BOARD OF EDUCATION

Effective November 1978, the Tennessee State Board of Education requires all students preparing for a teaching career in Tennessee to pass a standardized test of basic skills (Pre-Professional Skills Test) prior to admission to teacher education programs.

CREDIT HOURS, GRADES AND GRADE POINT AVERAGE

The basic unit of credit at The University of Tennessee, Knoxville, is the semester 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 credit hours 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 credit hour in the course. A student's grade point average is obtained by dividing the total number of quality points the student has accumulated at UT by the number of hours the student has attempted at UTK, not including hours for which grades of I, N, NC, P, S, and W have been received.
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. Advising centers in each college handle all freshmen and a substantial amount of sophomores advising; major advisors within the college, working closely with the advising center, guide advanced students. At all levels, campus-wide guidelines for good advising are supplemented by specific college standards, guidelines, and evaluations. Prior to advanced registration, during each main term of the academic year (i.e., during Spring and Fall), each student has the obligation to consult an advisor for a substantial conference.

Students who are admitted as university students and have not yet declared an interest in a specific college are advised by the College of Liberal Arts Advising Center, 220 Ayres Hall, with assistance of advisors in other colleges and career planning.

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 preferences. 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.

Part-time students, particularly those registering through Evening School, should establish contact with an advisor in the college with which they are associated or in which they have expressed an interest. Assistance to students with academic problems or questions is provided by course professors, student deans, 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 in this catalog under "Student Affairs and Services."

ACCELERATED PROGRAM
The University operates on the semester calendar, and a majority of its courses, especially at the lower division, are offered every term. Through appropriate arrangements of courses and attendance during the summer terms, students may 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.

CLASS ATTENDANCE AND ELIGIBILITY
Only students who are properly registered for a course may attend its classes on a regular basis. Any other person in the classroom for special reasons 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.

CLASSIFICATION
Undergraduate students are classified according to the following chart, on the basis of semester hours passed.

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

CLASSIFICATION OF STUDENTS BY SEMESTER HOURS PASSED

<table>
<thead>
<tr>
<th>LAW SCHOOL GRADES</th>
</tr>
</thead>
<tbody>
<tr>
<td>YEAR</td>
</tr>
<tr>
<td>All Other Undergraduate Programs</td>
</tr>
<tr>
<td>YEAR</td>
</tr>
<tr>
<td>First</td>
</tr>
<tr>
<td>Second</td>
</tr>
<tr>
<td>Third</td>
</tr>
<tr>
<td>Fourth</td>
</tr>
<tr>
<td>Fifth</td>
</tr>
</tbody>
</table>

CLEP CREDIT
When approved by a given department, nationally recognized examinations, such as the 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. The final decisions, as to specific courses for which such examinations are to be taken as evidence of acceptable proficiency, and as to the minimum score required for credit to be given, rest with the department.

The CLEP examinations may be taken at the Center for Extended Learning, 420 Communications and University Extension Building. The Center supplies information on test dates and procedures, and also current departmental policies concerning the acceptance of CLEP credit.

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. Credit for undergraduate 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 enrolled in the College of Law or, except by prior permission, for students in the Center for Health Sciences.

All courses taken by correspondence for which degree credit is given must meet degree program requirements of the Knoxville campus. In addition, all currently enrolled UTK students who intend to take correspondence courses must have the approval of the dean of the college or school.
in which they are enrolled prior to registering for a new college-credit correspondence course. Degree credit will not be granted for correspondence courses taken at an institution other than The University of Tennessee by a UK student if an equivalent correspondence course is available from The University of Tennessee Center for Extended Learning.

Correspondence courses are open to students who have been dropped from the University for academic reasons only with the prior permission of the dean of the college or school in which they were enrolled. A senior may take only six hours of the last year's work (the last 30 semester hours) 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 certification purposes should consult the State Department of Education of their respective states concerning the amount of correspondence credit allowed for teacher certification. Effective September 1, 1989, students may only register for semester credit correspondence courses.

COURSE NUMBERS AND LEVELS

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

<table>
<thead>
<tr>
<th>Course Numbers</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>000-099</td>
<td>College-credit; preparatory</td>
</tr>
<tr>
<td>100-299</td>
<td>Lower division—primarily for freshmen and sophomores</td>
</tr>
<tr>
<td>300-499</td>
<td>Upper division—primarily for juniors and seniors; when taken for credit, the letter &quot;G&quot; will precede the course credit hours on the grade report</td>
</tr>
<tr>
<td>500-599</td>
<td>Graduate; sometimes available for undergraduate credit; when taken for undergraduate credit, the letter &quot;U&quot; will precede the course credit hours on the grade report</td>
</tr>
<tr>
<td>600-699</td>
<td>Advanced graduate; open to graduate students only</td>
</tr>
<tr>
<td>800-899</td>
<td>Law; occasionally open to other qualified students. Veterinary medicine.</td>
</tr>
<tr>
<td>900-999</td>
<td>Open to all college-credit students</td>
</tr>
</tbody>
</table>

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

Following certain course descriptions in this catalog are the designations: F, Sp, Su, A-O, A-E, E. These indicate the semesters Fall, Spring, Summer, Alternate Odd Academic Years, Alternate Even Academic Years, or Every Semester in which a course is normally offered and are intended as an aide to students planning their programs of study.

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. 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 term and must gain final approval for the petition no later than the add deadline of the term involved.

FAILURE TO MEET PROGRESSION REQUIREMENTS

Undergraduate students who are not eligible to progress in a college, school, or major with such requirements will be notified and assigned to the advisor in University Students who will advise the student and approve enrollment requests until the student is enrolled in another college or major.

FINAL EXAMS

Any final exams must be given during the final exam period at the scheduled time, although alternative uses of the scheduled exam period may be designated by the instructor. Students are not required to take more than two written exams on any day. The instructor(s) of the last non-departmental exam(s) on that day must reschedule the student’s exam during the exam period. It is the obligation of students with such conflicts to make appropriate arrangements with the instructor at least two weeks prior to the end of classes.

No in-class, written quizzes or tests counting more than 10% of the semester grade may be given the last five calendar days prior to the study period. Courses that are exempt from this policy are so indicated in the catalog course description.

GRADUATING SENIOR PRIVILEGES

A senior who fails one subject during the semester of intended graduation may, with approval, take an examination or other appropriate form of evaluation. The senior must receive the approval of the instructor and appropriate collegiate personnel which may include the department head and/or dean. The evaluation may take place at the beginning of or during the next semester and, if successful, the senior will receive the degree at the next commencement.

HONORS COURSES

Courses specifically designated as honors courses will receive the notation “Hon.” These courses are available, but not exclusive to, those students enrolled in the University Honors Program. Students selected on the basis of ACT/SAT scores and previous academic performance may also enroll. There is no limit to the number of credits that may be earned in these courses except in the senior readings courses not requiring regular class attendance. These courses may not total more than six credit hours toward graduation. In the fields of science that offer four credit hour courses, the total may be eight semester hours.

Letters are sent to entering freshmen who qualify for non-departmental honors courses. Students other than freshmen should consult the Director of Honors Program or individual programs.

INCLEMENT WEATHER

The University of Tennessee, Knoxville, will remain open except in the most severe weather conditions.

The Chancellor may officially close or suspend selected activities of the University because of extreme weather conditions. When a decision to close is reached, campus and local radio and TV stations will be notified so that appropriate announcements may be made.

If the University is officially closed, certain essential activities such as food services, physical plant, police, steam plant, and tele-
phone services will continue to operate. Some facilities such as the library and University Center will, if possible, continue to function as a service to students and faculty. When the University is officially closed, its policy of Days of Administrative Closing will apply for staff exempt and staff non-exempt employees.

In the event of inclement weather when the University remains open, all faculty, administrators, and staff will be expected to make every reasonable effort to maintain their regular work schedules, but are advised to avoid undue risks in traveling. Employees who anticipate arriving late or not arriving at all should notify their immediate supervisors. Employees will have the option of charging their time off to annual leave or leave without pay, or, with approval, they may make up their lost work hours.

Students will be responsible for any academic work which they miss due to absences caused by severe weather conditions. It is the individual student's responsibility to take the initiative to make up any missed classwork, and it is the instructor's responsibility to provide a reasonable opportunity for students to complete assignments or examinations missed due to such absences.

MINIMUM CLASS SIZE

An undergraduate course will not normally be given for fewer than fifteen students at the lower division; twelve at the upper division; and nine at the graduate level except by permission of the Provost. The University reserves the right to cancel, postpone, or combine when necessary.

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.

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

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

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.

SECOND MAJORS AND MINORS

Students may pursue any available minors or second majors which will be so noted on their transcripts upon graduation. Students should understand that meeting the requirements of minors or second majors may lengthen their academic programs and should consult closely with advisers in both areas.

SENIORS ELIGIBLE FOR GRADUATE CREDIT

A senior at The University of Tennessee, Knoxville, who needs 30 semester 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 semester, subject to the approval of each term of the Dean of the Graduate School.

SPECIAL REQUIREMENTS FOR STUDENT-ATHLETES

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

TEACHER CERTIFICATION

Teacher certification is a responsibility of the College of Education of The University of Tennessee, Knoxville. Students desiring certification must meet general education, professional education, and area of specialization requirements described in the College of Education section of this catalog.

UNIVERSITY STUDENTS

Many students are undecided about their major when they enter UTK. All undecided students are designated University Students and are advised by the Liberal Arts Advising Center. While it is proper to explore alternative choices, student should also aim at pursuing a course of study that culminates in graduation. For this reason students who enter UTK as freshmen may remain as University Students no longer than through the completion of the second full term of study (30 semester hours). Students who transfer from another college or university may enroll as University Students, however if the total number of hours transferred is more than 30 semester hours, transfer students may remain as University Students no longer than through the completion of 15 semester hours. UTK students who fail to progress in a given major, college, or school and are undecided about an alternative course of study may continue at UTK as University Students for a maximum of 15 semester hours.

All students, whether enrolled in a college or school or University Students, must be accepted by the college or school or University Students for a maximum of 15 semester hours.

WRITING COMPETENCE

The faculty of all colleges expect students to communicate effectively in standard written English in laboratory reports, examinations, essays, and other written assignments.

WRITING DEFICIENCY

By checking the column headed "English Deficiency" on the grade forms, individual faculty members have the opportunity to report students who are deficient in writing to the Writing Laboratory for help in improvement. Such students are required to begin work in the laboratory at the start of their next term in residence and continue this work until their writing is deemed adequate. The adequacy of a student's writing will be determined by:

a. demonstration of adequate skills on the Writing Laboratory Diagnostic Test. A passing grade on this text excuses a student from required laboratory attendance for one year. Reports in subsequent years of writing deficiency will require the student to demonstrate his/her writing proficiency once again; or

b. demonstration, to the satisfaction of the Writing Laboratory director, of adequate writing skills in assignments and work sessions designated by the Director. Release by the director of the Writing Laboratory excuses a student from required laboratory attendance for one year. Reports in subsequent years of writing deficiency will require the student to demonstrate his/her writing proficiency once again.

A student must fulfill the above requirements to graduate. However, if a student has no obligation to the Writing Laboratory in the term before graduation, a new report in the final term will not prevent graduation.

A student reported as deficient in writing will have his/her class schedule held the fol-
which his/her schedule has been held and required to attend a minimum of one session attend Writing Laboratory. A student will be required to attend the Writing Laboratory. The services of the Writing Center will be available to such students on a fee basis.

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 upon receipt of their Admission when to register. Former students who have been absent from UTK other than the summer term and students who have withdrawn from the previous semester will receive registration information after their letter of readmission. 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 Questionnaire is sent to all admitted students and must be completed by the student, parent, or other responsible party who is familiar with the student's medical history. Such information will facilitate University physicians in providing continuing health care. This form must be returned to the Student Health Service before enrollment.

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

FIRST CLASS MEETING

Students who do not attend the first class meeting will be dropped from the course unless they have made prior arrangements with the department. It is the responsibility of students to take whatever steps necessary to see if they have been officially dropped from a course.

MAXIMUM HOURS PER TERM

Undergraduate students may enroll for a maximum of 19 credit hours each semester 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 semester. Enrollment in more than 15 hours must be approved by the Dean of the Graduate School. Law and Veterinary Medicine students may enroll for the maximum number of credit hours each semester as specified by the respective college.

AUDITING COURSES

Students may enter classes as auditors with the consent of the instructor. The instructor will determine the appropriate requirements or restrictions. Auditors receive no credit and the audited course will not be recorded on the transcript. The student's name will appear on the class roll to inform the instructor that the student is properly enrolled as auditor.

Auditors are required to register and pay fees. Prior to the drop and 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 Change of Registration Form and having it processed at a terminal in Drop/Add. Once the drop and add deadline is passed, a change will not be allowed.

PREREQUISITE AND COREQUISITE COURSES

Students must meet prerequisite and corequisite requirements for all courses with such restrictions, and no student shall be permitted to register for those courses in which the requirements have not been met.

CHANGES IN REGISTRATION

Students may add courses through the tenth calendar day counted from the beginning of classes. 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 tenth day. Students must fill out and submit the appropriate form for section changes in order to receive credit for the course.

All official withdrawals from the University are processed at a terminal in Drop/Add. Once the drop and add deadline is passed, a change will not be allowed.

COURSES

PREREQUISITE AND COREQUISITE COURSES

Students must meet prerequisite and corequisite requirements for all courses with such restrictions, and no student shall be permitted to register for those courses in which the requirements have not been met.

CHANGES IN REGISTRATION

Students may add courses through the tenth calendar day counted from the beginning of classes. 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 tenth day. Students must fill out and submit the appropriate form for section changes in order to receive credit for the course.

All official withdrawals from the University are processed at a terminal in Drop/Add. Once the drop and add deadline is passed, a change will not be allowed.

UNDERGRADUATE RETENTION STANDARDS

TRANSFER STUDENTS

A transfer student who has been conditionally admitted must meet the regular University standards of retention during the first term, or any subsequent term before attaining good standing.

ACADEMIC SECOND OPPORTUNITY

As an aid to the serious re-entry student whose previous academic work was below average, 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. Whether or not Academic Second Opportunity is granted is at the discretion of the Committee of Readmission. If granted, all previous academic work will remain on the permanent record, but the grade of "P" for such work will not be included 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 below has been earned may be used to meet major, distribution, and graduation requirements; the previous grades will be computed as Satisfactory (S) grade. At least 30 hours must be completed at UTK after readmission. In addition, at least 80 semester hours of letter grades (A-F) must be earned after readmission in order to meet the minimum qualifications for graduation with honors. Academic Second Opportunity may only be declared once. All petitions for Academic Second Opportunity must be submitted to the Committee on Readmissions no sooner than completion of the first semester at UTK and no later than one calendar year following readmission to UTK.

**Readmission**

A student in good academic standing who has withdrawn from school or who has been absent for a term other than the summer must make application for readmission. Transfer students must apply for readmission before the deadlines. A student who has been dropped academically must apply for readmission. 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.

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

Deadlines are available in the Readmissions Office.

**Academic Review**

The University of Tennessee expects all students who enter the University to remain in good academic standing. To accomplish this, the University has established retention standards. To graduate from UTK, the minimum cumulative GPA must be 2.00. The catalog contains additional retention, progression, and graduation requirements for specific programs.

A student whose cumulative or semester grade point average falls below the minimum acceptable level of 2.00 will be placed in academic review for the subsequent semester of enrollment. During that semester and any other semesters in review, a student must participate in a special advising program in the Dean's Office of his or her college or school. If, while in review, a student does not maintain a 2.00 grade point average for hours attempted each term, the student must meet with a committee appointed by the academic dean of the college or school of enrollment. This committee will determine the most appropriate academic action. In turn, a commitment from the student to accomplish the action recommended by the committee is expected. In certain circumstances, it may be concluded that a term of suspension from the University is necessary.

**General Requirements for a Bachelor's Degree**

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

1. Complete satisfactorily all requirements of the curriculum for which the student is enrolled, as described in the portion of this catalog devoted to the college or school offering the curriculum. Curriculum requirements change frequently, and students should note the caution on the second page of this section. A student is allowed to satisfy requirements for a bachelor's degree under any curriculum in effect during the student's attendance at UT, Knoxville provided the curriculum has been effective within six years of the date of graduation. This does not obligate the University to offer a discontinued course. Programs may be adjusted by the student's faculty advisor and college dean, in consultation with the Registrar's Office.

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

3. Complete at least 60 hours of credit offered for the bachelor's degree at an accredited senior college.

4. Complete the last 30 hours of credit offered for the bachelor's degree in residence at The University of Tennessee, Knoxville. In the College of Agriculture at least 18 semester hours of upper-division technical agriculture approved by the student's faculty advisor must be completed at The University of Tennessee, Knoxville. Credit for correspondence courses taught by the faculty of the Knoxville campus may be counted as part of this requirement, with the exception of the limitation noted in the regulations concerning correspondence work. Special arrangements to allow work taken at other University of Tennessee campuses to be counted as part of this requirement must be approved by the dean of the student's major college or school and the Dean of Admissions and Records.

5. Comply with the state law that one unit of American history at the high school level or six semester hours of collegiate work be satisfactorily completed. This requirement is effective for those graduating July 1, 1978 and thereafter. It may be satisfied by completing History 251-252 or (257-258). History 449 may be used in lieu of three hours of American history. Students should consult the catalog of enrollment to determine how the six hour's credit for fulfillment of this requirement is to be included in individual curricula.

6. Fulfill all financial obligations (fees or fines) owed to the University.

7. Pay to the Treasurer's Office the graduation fee no later than the beginning of the semester of graduation.

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

9. Comprehensive Test in Major

**Honors Categories for Graduation**

Honors are conferred upon graduating students who have displayed a high level of achievement during their university career. Recipients of honors receive their degrees with:

- "cum laude" 3.50 through 3.64
- "magna cum laude" 3.65 through 3.79
- "summa cum laude" 3.80 through 4.00

These honors categories are based on a student's cumulative average at the end of the semester preceding the graduation semester. For all students entering Fall, 1985 and thereafter, honors categories are based only on the average earned at The University of Tennessee, Knoxville. Students must have earned at least 60 hours at UTK in order to qualify for honors categories. For all other students, the honors category is based on the average earned at UTK and the combined average of all college work attempted, with the lower of the two averages determining the honors category.

If, at graduation, a student's grade point average would allow a higher honors category than that determined at the end of the semester preceding the graduation semester, 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.

**Second Bachelor's Degree**

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

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

2. Complete at least 30 semester hours beyond the first bachelor's degree.

3. Attend the University for at least two semesters 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.
THE UNIVERSITY REQUIREMENT
GENERAL EDUCATION AT UTK

The goal of general education is to develop those basic skills, knowledges, attitudes, and judgments that are necessary for effective citizenship at all levels, from the local to the global; for responsible and fulfilling interactions with others and the environment; and for an enriched personal life. General education may also provide the basis for a major or professional concentration, but its aims are not career-specific. The following areas define the general education program for UTK undergraduate curricula.

English Composition (2 courses)
Courses used to meet this requirement should develop the student's ability in analytic and expository writing through the study of literature and writing applications. This requirement would normally be satisfied by completion of English 101-102 or equivalents, or by demonstration of proficiency.

Mathematical Sciences (2 courses)
Courses used to meet this requirement should develop the student's ability to analyze and solve quantitative and logical problems.

Humanities and The Arts (2 courses)
Courses used to meet this requirement may concentrate either on critical analysis or practice of the arts. These might include the interpretation and analysis of works in one or more of the arts; consideration of significant philosophical, ethical, or religious text and issues; or participation in some area of the visual, spatial, musical, theatrical, rhetorical, or written arts.

Historical Studies (2 courses)
Courses used to meet this requirement should develop the student's appreciation of continuity and change over time. Such courses would examine the connections and interactions between different aspects of the human experience through attention to significant political, social, economic, intellectual, and cultural developments in a chronological, balanced, and integrated framework.

Social Sciences (2 courses)
Courses used to meet this requirement should describe the structures of society, clarify the dynamics of cognitive and personal development through the life cycle, or analyze social, economic, or political issues.

Natural Sciences (2 courses)
Courses used to meet this requirement should describe the world around us using scientific methods and examine natural phenomena in terms of scientific principles. Such courses would normally contain a laboratory or field experience.

Foreign Languages (2 courses at the intermediate level)
Courses used to meet this requirement should describe the world around us using scientific methods and examine natural phenomena in terms of scientific principles. Such courses would normally contain a laboratory or field experience.

Integrative Studies (2 courses)
Courses used to meet this requirement may be of three broad types:
- a. Multicultural studies, which analyze international dimensions of critical issues or explore elements and values that shape a culture other than the student’s own;
- b. Interdisciplinary studies, which incorporate the methods and approaches from two or more disciplines to explore major issues; or
- c. Disciplinary perspective courses, which explore the potential and limits of a discipline in terms of its impact on individuals and society or examine a student's major course of study from a value-oriented perspective.

All majors and college or school curricular requirements described in this catalog are in accordance with the University Requirement.
<table>
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<tr>
<th><strong>Academic Policies and Regulations</strong></th>
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<td><strong>TERMS COMMONLY USED IN ADMISSION AND REGISTRATION PROCEDURES AT UTK</strong></td>
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<td>Corequisite</td>
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<td>Grade point</td>
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<td>AP exam</td>
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| 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  
Statements on acceptance of CLEP test scores for academic credit at UTK are found in this catalog. |
| 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. |
| 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. For information and to make arrangements to take the examination, contact: *The Test of English as a Foreign Language*  
Educational Testing Service  
Princeton, NJ 08540 |
| 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. |
| University honors courses | Non-departmental enrichment courses available (by invitation only) from the University Honors Program. |
| Honors course or section | A version of a regular course reserved for students with superior preparation for that course. See, for example, English honors; Chemistry honors; Mathematics honors; History honors. |
| 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. |
| 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 focuses on a particular subject area. The term "concentration" describes the nature of the set of courses. |
| 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. |
# MAJORS, MINORS, AND CONCENTRATIONS

<table>
<thead>
<tr>
<th>DEPARTMENT (UNIT)</th>
<th>MAJOR</th>
<th>CONCENTRATION WITHIN THE MAJOR</th>
<th>DEGREE</th>
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¹Minor available: Coaching
²Minor available: General Special Education
³Minor available: Driver and Traffic Education and Health Education
⁴Minor available in Portuguese
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1Minor available
2Minor available for students in other colleges
3Minor available: Driver and Traffic Education and Health Education
4Minor available: Coaching
5Minor available: General Special Education
6Minor available in Portuguese
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1 Minor available
2 Minor available for students in other colleges
3 Minor available: Coaching
4 Minor available: General Special Education
5 Minor available: Driver and Traffic Education and Health Education
6 Minor available in Portuguese
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<td>Strings</td>
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1 Minor available
2 Minor available for students in other colleges
3 Minor available: Driver and Traffic Education and Health Education
4 Minor available: Coaching
5 Minor available: General Special Education
6 Minor available in Portuguese
The College 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.

Two separate administration units — the Agricultural Experiment Station and the Agricultural Extension Service — were organized and assigned responsibility for research and extension functions, respectively. More recently a College of Veterinary Medicine was established. These three units and the College now constitute the University of Tennessee's Institute of Agriculture. Thus, the College of Agriculture is not only an academic unit of The University of Tennessee, Knoxville campus, it is also an important administrative unit of the Institute of Agriculture.

There are many shared resources and positive interactions between various units of the Institute. For example, most of the faculty in the College of Agriculture hold joint appointments in the Agricultural Experiment Station and the other units of the Institute, and are actively involved in significant basic and applied research in agriculture and the associated natural resources. On campus and field research laboratories are utilized in the instructional programs of the College, while extension and research activities provide many students excellent part-time job opportunities.

The unique association the College has with the UTK campus and the other units of the Institute of Agriculture make it possible for the College to offer comprehensive high quality undergraduate and graduate programs.

**CURRICULA IN AGRICULTURE**

Broad opportunities for individuals to prepare for a future in agriculture, forestry, and wildlife and fisheries science are offered in the College of Agriculture. The College provides curricula leading to the degrees of Bachelor of Science in Agriculture, Bachelor of Science in Agricultural Engineering, Bachelor of Science in Forestry, 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 of Engineering and Technology. The forest resource management and forest recreation concentrations are 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 economics and business, agricultural education, 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 he/she 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.

Students pursuing a program leading to the degree of Bachelor of Science in Agricultural Engineering may select the concentration offered in food engineering. Students seeking the Bachelor of Science in Forestry may choose concentrations in forest resource management, forest recreation, or wood utilization.

Satisfactory/no credit courses

Students may include a maximum of 21 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.

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. On the agricultural campus are found the main agricultural building, Morgan Hall; the Agricultural Engineering Building; McCord Hall; the Dairy Products Building; McLeod Food Technology Building; C. E. Brehm Animal Sciences Building, which includes a large pavilion; Ellington Plant Sciences Building which houses the plant science departments; and greenhouses for teaching and 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 (80 acres), Cherokee Farm (550 acres), Plant Sciences Farm (212 acres), and a livestock farm (510 acres) provide excellent field laboratory facilities for instructional programs offered in the College. Cherokee Woodlot (120 acres), the Oak Ridge Forest (2,260 acres), and Agricultural Plantation (8,000 acres of forested land) provide excellent facilities for field work in forestry, wildlife and fisheries.

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 areas 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 not necessary, however, that freshman students select their curriculum until the end of the first year. Those who are in doubt will be assigned a special 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 above average academic record to complete a double or triple 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. The multiple major will normally require more than 132 hours credit for graduation.

OPTIONAL MINORS
Agricultural students may have single or multiple minors in agriculture or in other colleges recorded on their transcripts without regard to course overlap among majors and minors. A minor in a department of the College of Agriculture requires a minimum of 18 credit hours in courses numbered 200 and above with the majority of credit hours at the 300 and 400 level. At least 9 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.

MINIMUM REQUIREMENTS FOR BACCALAUREATE DEGREE PROGRAMS
All B. S. degree programs offered in the College have the following minimum requirements:

Agriculture and Renewable Natural Resources (24)

- Biological Sciences (College of Agriculture courses included) (8)
- Computer Science (3)
- English and Communications (12)
- English Composition (6)
- Speech (3)
- Writing or Speaking elective (3)
- Mathematics (5)
- Physical Sciences (Chemistry, Physics, Geology) (8)
- Social Sciences and Humanities (12)

Economics (4)
Electives (8)
Directed Electives (6)
Major Courses (24)
College of Agriculture courses (outside of the major department) designated by the department and/or electives (12)
Other courses designated by the department and/or electives (38)

For a total of 132 hours.

INDEPENDENT STUDY
Independent study and special topics courses and seminars offered in each department provide exceptional students the opportunity to explore in greater depth subject-matter of unusual significance to agriculture. Students gain experience and are encouraged to assume responsibilities not available in formally organized courses. Association with students and faculty from all phases of agriculture and the renewable natural resources in the study of a common problem provides an unusual challenge.

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

TRANSFER STUDENTS
Students who transfer to the College of Agriculture from another institution, or from another college at 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 semester of study in the selected curriculum.

AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY

Professors:
H. Williamson (Head), Ph. D.
Missouri/M. B. Badenhop (Emeritus), Ph. D., Purdue; J. R. Brooker, Ph. D., Florida; C. L. Cleland, Ph. D., Wisconsin; D. B. Eastwood, Ph. D., Tufts; L. H. Keller, Ph. D., Kentucky; T. H. Klnadt (Asst. Dean), Ph. D., Kentucky; F. O. Leuthold, Ph. D., Wisconsin; J. A. Martin (Emeritus), Ph. D., Minnesota; D. L. McLemore, Ph. D., Clemson; B. R. McManus, Ph. D., Purdue; S. D. Mundy, Ph. D., Tennessee; B. H. Pentecost (Asst., Vice Pres.), J. D. Tennessee, W. P. Ranney (Emeritus), Ph. D., Minnesota; C. B. Sappington (Emeritus), Ph. D., Illinois; T. J. Whelty (Emeritus), Ph. D., Purdue.

Associate Professors:
AGRICULTURAL ECONOMICS AND BUSINESS CURRICULUM

Advisors:
Professor McLemore. Associate Professors Park and Roberts. Assistant Professors Hufkaker and VanTassel.

This curriculum is designed to provide students with training in the social sciences as well as in the physical and biological sciences and technical agriculture. Through course selection, students may prepare for employment in the rapidly expanding field of agricultural business or in the field of farm production and related areas. The business oriented student will be prepared for the management phases of agricultural business. Employment opportunities include work in marketing of agricultural products, agribusiness firm management, agricultural credit agencies and banks, farm real estate and appraisal services, public and private market analysis, and farm information services utilizing mass communications.

Farm management oriented students will be prepared for positions such as farm managers, county agricultural agents, managers of farm supply and purchasing firms, agricultural journalists, and farm loan agents. The curriculum also provides the necessary background for graduate work in agricultural economics.

Minor consists of 19 credit hours including Economics 201, Agricultural Economics 210, 342, 350, and 6 hours of Agricultural Economics and Rural Sociology electives.

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<tr>
<td></td>
<td></td>
<td>Agricultural Economics or Rural Sociology electives</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Senior</td>
<td>Nondepartmental agricultural electives</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Agricultural Economics or Rural Sociology electives</td>
<td>12</td>
</tr>
</tbody>
</table>

AGRICULTURAL AND EXTENSION EDUCATION

Professors:

Associate Professors:
R. R. Lessly (Head), Ed. D. Oklahoma State.

The Department of Agricultural and Extension Education has two educational areas of emphasis; namely, Agricultural Extension Education and Agricultural Education.

AGRICULTURAL EXTENSION EDUCATION

Although no formal undergraduate curriculum is offered in Agricultural Extension Education, undergraduate courses are available as electives in each formal curriculum. These courses are designed to develop an understanding of the functions, responsibilities, and techniques of the Agricultural Extension Service; and to provide prospective Extension employees with work experience in selected training counties.

AGRICULTURAL EDUCATION

Students who complete the requirements for graduation in Agricultural Education receive a Bachelor of Science Degree in Agriculture with a Major in Agricultural Education. The curriculum is designed to prepare persons to assume educational and leadership roles in many phases of the agricultural industry, including agribusiness, schools, agencies, and farming and ranching. Emphasis is on preparing students to teach vocational agriculture or serve as an educator with the Agricultural Extension Service. Students may choose to concentrate either in the teacher education (certification) option or the professional service option.

The teacher education option is designed to prepare students to meet teacher certification requirements for vocational agriculture. Teacher Certification is given through the College of Education. Students must file for admission to Teacher Education 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/or agricultural mechanics by meeting the following requirements:

1. Ornamental horticulture - 12 semester 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.
2. Agricultural mechanics - 12 semester hours of courses in agricultural mechanization. Subject matter areas must include agricultural power and machinery, soil and water conservation, and agricultural structures.

Students who choose the professional services option may substitute additional technical agriculture and/or internship hours equivalent to the number of hours of student teaching required in the teacher education option. With advisor approval additional hours, required specifically for certification, may also be substituted with courses in the humanities, social sciences or technical agriculture areas. This option provides a broad-based curriculum designed for those students who wish to prepare for careers with the Agricultural Extension Service, agribusiness, government agencies, and farming and ranching. This option does not prepare a student to meet teacher certification requirements.

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Freshman</th>
<th>Agriculture 101</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Biology 110, 120</td>
<td>8</td>
<td></td>
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<tr>
<td></td>
<td>Economics 102</td>
<td>6</td>
<td></td>
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<tr>
<td></td>
<td>Mathematics 119, 121</td>
<td>6</td>
<td></td>
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<tr>
<td></td>
<td>Economics 201</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Animal Science 261 or 281</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Computer Science elective</td>
<td>3</td>
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<tr>
<td></td>
<td>Sophomore</td>
<td>Chemistry 200, 110</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Speech 210</td>
<td>3</td>
<td></td>
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<tr>
<td></td>
<td>Humanities elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Horticulture elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agricultural Economics 210</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plant and Soil Science 210</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plant and Soil Science 230</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agricultural Engineering Technology 201</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Food Technology and Science 360</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Physical Education elective</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Junior</td>
<td>Entomology and Plant Pathology 321</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Animal Science 331</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td>Animal Science elective</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td>Agricultural Engineering Technology elective</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td>Agricultural Education 345, 346</td>
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<td></td>
<td></td>
<td>Agricultural Economics 342</td>
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<td></td>
<td>Agricultural Education 351</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Special Education 370</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Curriculum and Instruction 360</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Health elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Senior</td>
<td>4 Agricultural Education 435, 436</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Agricultural Education 420</td>
<td>2</td>
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<td></td>
<td></td>
<td>Educational Psychology 315</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td>Curriculum and Instruction 461</td>
<td>3</td>
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<td></td>
<td></td>
<td>Humanities electives</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>General elective</td>
<td>4-6</td>
</tr>
</tbody>
</table>

Total: 132 hours

1. The course should contain a writing component.
2. Select from ornamental horticulture, fruits or vegetables.
3. Select from Animal Science 481, 482, 483.
4. Equivalent hours will be substituted for students not desiring certification.
AGRICULTURAL ENGINEERING AND TECHNOLOGY


Assistant Professor: D. O. Baxter, M.S. Missouri; R. S. Freeland, Ph.D. Tennessee. Advisors: Professors Luttrell, Bledsoe, Henry, McDow, Tompkins, Wilhelm, Mote and von Bernuth. 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 accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. Industry, government agencies, research testing organizations, and foreign service offer employment opportunities to agricultural engineers.

In addition to general requirements for admission to the University, the minimum requirements for association include two units of algebra, one unit in geometry, one-half unit in trigonometry, and one unit in physics or chemistry. Students may remove deficiencies by registering for special classes during the freshman year.

The curriculum trains students in analysis and design skills to solve engineering problems in agriculture. In the senior year comprehensive design of systems and their problems is emphasized. Graduates may pursue careers in design, analysis, or development in agricultural power and machinery, agricultural structures and environment, agricultural electrical and electronic systems, processing and materials handling systems, and soil and water conservation engineering.

The curriculum provides elective courses which can be taken in the student's area of interest. Students must check with their advisors each semester regarding the selection of courses and should decide on an area of interest before starting the junior year.

In cooperation with the Food Technology and Science Department, an agricultural engineering degree with a concentration in electronic systems, processing and materials and environment, agricultural electrical and analysis, or development in agricultural is offered. A minor in agricultural engineering technology requires a minimum of 18 semester hours as follows:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics 130, 140, 150</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry 101, 102, 103</td>
<td>3</td>
</tr>
<tr>
<td>Physics 231, 232</td>
<td>4</td>
</tr>
<tr>
<td>Technical Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

Total: 137 hours

AGRICULTURAL ENGINEERING

Professors: L. R. Wilhelm, Ph.D. Tennessee, P.E.; R. D. von Bernuth, Ph.D. Nebraska, P.E.; C. H. Shelton, M.S. Virginia Polytechnic Institute; F. D. Tompkins, Ph.D. Tennessee, P.E.; B. L. Bledsoe (Associate Head), Ph.D.

A program leading to the Master of Science degree in agricultural engineering technology is available (see the Graduate Catalog). The graduate program is open to qualifying BS graduates from other disciplines who earned a minor in agricultural engineering technology or who completed courses equivalent to those required for the minor in agricultural engineering technology.

AGRICULTURAL ENGINEERING WITH CONCENTRATION IN FOOD ENGINEERING

Minutes Credit

Freshman
Basic Engineering 100, 101, 111, 121, 131... 13
Chemistry 100, 101, 110, 111... 8
English 101, 102... 6
Mathematics 141, 142... 8
Sophomore
Agriculture 101... 3
Agricultural Engineering 200... 1
Engineering Science and Mechanics 231, 321, 341... 9
Humanities/Social Science Elective... 3
Mathematics 200, 231, 241... 8
Microbiology 110... 3
Physics 231, 232... 7
Junior
Agricultural Engineering 300, 330, 350... 6
Basic Engineering 200, 211, 221, 231... 13

Total: 58 hours

AGRICULTURAL ENGINEERING


Agricultural engineering majors interested in the Cooperative Engineering Scholarship program should consult with the head of the Department of Agricultural Engineering.

ENTOMOLOGY AND PLANT PATHOLOGY

Assistant Professors:  
J. F. Grant, Ph. D. Clemson; G. D. Gwin,  
Ph. D. North Carolina State; B. B. Reddick,  
Ph. D. Clemson; M. T. Windham, Ph. D. North  
Carolina State.

Advisors:  
Southards, Gerhardt, Hilty, Lambdin, and  
Pless.

No undergraduate curriculum exists in the  
Department of Entomology and Plant Pathol-  
ogy, but a program leading to the Master of  
Science degree in one of the majors in entomol-  
gy and plant pathology is available (see Gradu- 
ate Catalog). Courses in economic entomology, 
forest protection, plant pathology and veterinary  
entomology are available to undergraduate stu-  
dents.

Instruction and training is provided in  
those disciplines which deal with the natural  
hazards that are major causes of losses in  
agricultural production, namely, insects and  
plant diseases. Courses of study in entomol-  
gy or plant pathology should give the student  
an appreciation of insects and microorganisms,  
their ecology, population dynamics, potential  
damage to plants and their products, and various  
considerations in control alternatives.

ANIMAL SCIENCE

Professors:  
J. B. McLean (Acting Head), Ph. D. Auburn;  
K. M. Barth, Ph. D. Rutgers; M. C. Bell  
(Emeritus), Ph. D. North Carolina 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. Lidvall (Emeritus), M. S.  
Tennessee; T. P. McDonald, Ph. D. Tennessee;  
G. M. Merriman (Emeritus), D. V. M. Michigan  
State; J. K. Miller, Ph. D. Georgia; M. J.  
Montgomery, Ph. D. Illinois; D. O. Richardson,  
(Dean, Agr. Exp. Sta.), Ph. D. Ohio State;  
H. V. Shirley (Emeritus), Ph. D. Illinois;  
R. R. Shrode, Ph. D. Iowa State; R. L. Tugwell  
(Emeritus), Ph. D. Kansas State.

Associate Professors:  
W. R. Backus, Ph. D. Tennessee; H. Eiler,  
D. V. M. Ph. D. Illinois; R. N. Heitmann, Ph. D.  
Maine; R. W. Henery, Ph. D. Ohio;  
J. P. Hitchcock, Ph. D. Michigan State;  
H. G. Kattesh, Ph. D. Virginia Polytechnic  
Institute; F. B. Masincup, Ph. D. Kansas  
State; S. P. Oliver, Ph. D. Ohio State;  
K. R. Robbins, Ph. D. Illinois; T. W. Schultz,  
Ph. D. Tennessee; M. H. Sims, Ph. D.  
Auburn; J. C. Waller, Ph. D. Nebraska.

Assistant Professors:  
G. A. Baumbach, Ph. D. Florida; B. R. Bell,  
Ph. D. North Carolina State; A. B. Chestnut,  
Ph. D. Illinois; W. C. Cullen, Ph. D. Minneosta;  
J. D. Godkin, Ph. D. Massachusetts;  
S. E. Oroz, Ph. D. V. M. Ohio State;  
J. D. Quigley, Ph. D. Virginia Polytechnic  
Institute; J. D. Smalling, Ph. D. Texas A&M.

Advisors:  
Professors Barth, Erickson, McLean,  
Montgomery, and Shrode. Associate  
Professors Bauckus, Heitmann, Hitchcock,  
Kattesh, Masincup, Oliver, Robbins and  
Waller. Assistant Professors B. Bell,  
Chestnut, Godkin, Quigley and Smalling.

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

A minor in animal science consists of  
18 credit hours including 261 (3), 281 (4),  
and 11 credits from 321 (3), 322 (3), 331 (3),  
332 (3), one of the 360 series (2) and one of the  
480 series (3). Requests for substitution of simi-  
lar courses in biology or zoology will be  
considered on an individual basis. It is  
suggested that the selection from the 380  
series and one of the 480 series deal with the  
same class of livestock.

Total: 132 hours

Electives allow students to select an area  
for specialization. Those interested in pro-  
duction would select additional courses in  
egriculture; in business administration, eco-  
nomics, agricultural economics, finance, and  
accounting; in research in chemistry, zoology,  
physics, and statistics, etc. Electives should  
be chosen with career objectives in mind and in consultation with the advisor.  
The animal science core courses are 281,  
281, 321, 322, 331, 332 and 341.

COMBINED PROGRAM PREVET-  
B. S. DEGREE

This program allows students to be  
awarded a B.S. degree in Agriculture with a  
major in Animal Science, after the successful  
completion of the first two semesters in the  
CVM. Students must begin this program early  
in the pre-veterinary curriculum. The  
specific requirements are:

1. Completion of all pre-veterinary  
requirements.

2. The last 30 hours of the three-year  
pre-veterinary curriculum must have been  
taken at UTK.

3. At least 12 hours of upper division (300  
and 400 level courses) technical agriculture  
courses must be taken at UTK.

4. In addition to all the required pre- 
veterinary medical courses, the following  
or approved equivalents) must be completed  
before entering the College of Veterinary  
Medicine.

b. Animal Science 261, 281 - 7 hours  
c. Animal Science 322 - 3 hours  
No later than December 31 of the stu-  
dent's first year in the CVM (s)he should  
contact the Animal Science Department in  
order to check on graduation procedures for  
this program.

7. A total of 132 hours must be  
completed by the end of the first year  
in the CVM.
This curriculum meets the requirements for entrance to the CVM and after the first successful year in the CVM, the student will be awarded a B.S. in Agriculture with a major in Animal Science. Should the student not gain admittance to the CVM after the Junior year, the student could complete the requirements for a major in Animal Science during the Senior year.

**FOOD TECHNOLOGY AND SCIENCE**

Professors:

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

Associate Professors:

P. M. Davidson, Ph. D. Washington State; B. J. Demott, Ph. D. Michigan State; F. A. Draughon, Ph. D. Georgia; H. D. Loveday, Ph. D. Kansas State; J. R. Mount, Ph. D. Ohio State; M. J. Riemann, Ph. D. Kansas State.

Assistant Professors:

R. N. Biswal, University of Massachusetts, Amhurst; G. L. Christen, Ph. D. Missouri.

Advisors:

Collins, Draughon, Jaynes, Melton, Mount, Penfield, and Riemann.

The major in food technology and science prepares students to apply the sciences and engineering technology to manufacture, preserve, store, and distribute foods that meet the needs and desires of consumers. Coursework emphasizes the basic principles of converting raw food materials into acceptable consumer products. Selected commodity courses detail processing of various types of food materials. Students entering the program must have an interest in the sciences, particularly chemistry, microbiology, and biology.

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 management, ingredients specialist, etc. The program of coursework conforms to the guidelines in the model Curriculum of the Institute of Food Technologists. A special problems course provides opportunity for practical training in food processing plants and laboratories or federal and state laboratories.

The minor in Food Technology and Science requires a minimum of 16 hours as follows: 140, 420–429, 410 or 411, 440, and one elective course in Food Technology and Science.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
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<tr>
<td>Agriculture 101</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry 120, 130</td>
<td>3</td>
</tr>
<tr>
<td>English 101, 102</td>
<td>4</td>
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<tr>
<td>Food Technology and Science 140</td>
<td>3</td>
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<tr>
<td>Mathematics 119, 121</td>
<td>6</td>
</tr>
<tr>
<td>Social Sciences and Humanities Electives</td>
<td>6</td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>Biology 120</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 110</td>
<td>4</td>
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<td>Economics 201</td>
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<td>Microbiology 210</td>
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<tr>
<td>Physics 121</td>
<td>3</td>
</tr>
<tr>
<td>Speech 210</td>
<td>3</td>
</tr>
<tr>
<td>Communications Elective</td>
<td>3</td>
</tr>
<tr>
<td>Computer Science Elective</td>
<td>3</td>
</tr>
<tr>
<td>Social Sciences and Humanities Electives</td>
<td>3</td>
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<tr>
<td>Junior</td>
<td></td>
</tr>
<tr>
<td>Agricultural Engineering Technology 422</td>
<td>3</td>
</tr>
<tr>
<td>Food Technology and Science 410, 411</td>
<td>6</td>
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<tr>
<td>Food Technology and Science 420, 429</td>
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<td>Nutrition and Food Sciences 200, 201</td>
<td>7</td>
</tr>
<tr>
<td>Plant and Soil Science 471</td>
<td>3</td>
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<tr>
<td>Statistics 365</td>
<td>3</td>
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<tr>
<td>Social Sciences and Humanities Electives</td>
<td>6</td>
</tr>
<tr>
<td>Senior</td>
<td></td>
</tr>
<tr>
<td>Food Technology and Science 431</td>
<td>2</td>
</tr>
<tr>
<td>Food Technology and Science 430, 440</td>
<td>6</td>
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<tr>
<td>Nutrition and Food Sciences 330</td>
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<tr>
<td>Food Technology and Sciences Electives</td>
<td>9</td>
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<tr>
<td>General Electives</td>
<td></td>
</tr>
<tr>
<td>Total:</td>
<td>132 hours</td>
</tr>
</tbody>
</table>

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 concentrations: Forest Resource Management Concentration, Forest Recreation Concentration, and Wood Utilization Concentration.

**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 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 in the profession, and to do this effectively with the complex of forest resources.

A minor in Forestry consists of 16 credit hours as follows: FWF 211 or FWF 250, FWF 311 and 9 hours of courses having a Forestry designation. Prerequisites will not be waived.

**FOREST RESOURCE MANAGEMENT CONCENTRATION**

The Forest Resource Management Concentration provides an opportunity to obtain an education related to the management of the broad spectrum of wildland resources. In addition to the core of required courses, there are about 18 elective credit hours for broad studies or specialized training in one or more areas of forestry. These areas and examples of related fields of study are:

- Forest Biology including plant physiology and morphology, ecology, genetics, tree nutrition, forest soils; Forest Business Management including economics, accounting, finance, marketing, management science.
- Forest Economics including economics, finance, marketing, management science; Forest Inventory including mathematics, statistics, computer science, photogrammetry; Forest Recreation including natural and social sciences; and Wildlife Management including 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.
WOOD UTILIZATION CONCENTRATION

The Wood Utilization Concentration trains students for careers in forest products industries such as lumber, furniture, pulp and paper, or wood composites. Coursework is oriented towards the application of wood technology and engineering principles to wood processing. A sound background in basic sciences is required.

Demand for forest products is forecasted to increase. This increased demand should continue to provide excellent opportunities for forest products graduates.

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Freshman</th>
<th>Sophomore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humanities Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Communications Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Restricted Electives</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>General Elective</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Total: 135 hours</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Lists of appropriate courses in Social Sciences, Humanities, History, and Communications are available at the Department of Forestry, Wildlife and Fisheries.
2. Restricted Electives are chosen in conference with advisor; students will choose one course from WFS 443, 444, 445 to satisfy three hours of restricted electives.

FORREST RECREATION CONCENTRATION

The Forest Recreation Concentration provides 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 also learn the basic philosophy and principles associated with leisure time and its use along with the relationship of forest resources to the constructive use of leisure time.

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Freshman</th>
<th>Sophomore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humanities Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Communications Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>General Elective</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Total: 136 hours</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Lists of appropriate courses in Communications, and Humanities and Social Sciences are available at the Department of Forestry, Wildlife and Fisheries Office.

WILDLIFE AND FISHERIES SCIENCE

Wildlife and Fisheries Management is the science and art of maintaining populations of wild animals at levels consistent with the best interests of wild species and of the public. Management goals may be aesthetic, economic, or ecological. Success depends upon wildlife and fisheries biologists providing assistance; scholarly application of scientific information and methods to these goals; ecological perspective; and execution of programs to maintain past successes, to prevent repetition of past failures, and to prepare for future needs.

A minor in Wildlife and Fisheries Science consists of 16 hours as follows: FWF 211 or 250, FWF 300, FWF 341, 441, 443, and 444 or 445. Prerequisites will not be waived.

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Freshman</th>
<th>Sophomore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economics 101, 102</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Mathematics 141, 142, 143, 144</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Botany 110, 120</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Forestry 331, 332</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Junior</td>
<td></td>
<td></td>
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<tr>
<td>FWF 311</td>
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<tr>
<td>Forestry 331, 332</td>
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<tr>
<td>Senior</td>
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<tr>
<td>Forestry 331, 332</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Total: 132 hours</td>
<td>11</td>
<td></td>
</tr>
</tbody>
</table>

1. Communications course in speech or writing.
2. Vertebrate Biology course in ornithology, herpetology, mammalogy or ichthyology.
3. Wildlife and Fisheries Management is the science and art of maintaining populations of wild animals at levels consistent with the best interests of wild species and of the public. Management goals may be aesthetic, economic, or ecological. Success depends upon wildlife and fisheries biologists providing assistance; scholarly application of scientific information and methods to these goals; ecological perspective; and execution of programs to maintain past successes, to prevent repetition of past failures, and to prepare for future needs.

1. Lists of appropriate courses in Biological Sciences, Forestry, Wildlife and Fisheries, Plant and Soil Science, and Zoology are available at the Department of Forestry, Wildlife and Fisheries.

2. Wildlife and Fisheries Management is the science and art of maintaining populations of wild animals at levels consistent with the best interests of wild species and of the public. Management goals may be aesthetic, economic, or ecological. Success depends upon wildlife and fisheries biologists providing assistance; scholarly application of scientific information and methods to these goals; ecological perspective; and execution of programs to maintain past successes, to prevent repetition of past failures, and to prepare for future needs.

3. Wildlife and Fisheries Management is the science and art of maintaining populations of wild animals at levels consistent with the best interests of wild species and of the public. Management goals may be aesthetic, economic, or ecological. Success depends upon wildlife and fisheries biologists providing assistance; scholarly application of scientific information and methods to these goals; ecological perspective; and execution of programs to maintain past successes, to prevent repetition of past failures, and to prepare for future needs.

4. Wildlife and Fisheries Management is the science and art of maintaining populations of wild animals at levels consistent with the best interests of wild species and of the public. Management goals may be aesthetic, economic, or ecological. Success depends upon wildlife and fisheries biologists providing assistance; scholarly application of scientific information and methods to these goals; ecological perspective; and execution of programs to maintain past successes, to prevent repetition of past failures, and to prepare for future needs.

5. Wildlife and Fisheries Management is the science and art of maintaining populations of wild animals at levels consistent with the best interests of wild species and of the public. Management goals may be aesthetic, economic, or ecological. Success depends upon wildlife and fisheries biologists providing assistance; scholarly application of scientific information and methods to these goals; ecological perspective; and execution of programs to maintain past successes, to prevent repetition of past failures, and to prepare for future needs.

6. Wildlife and Fisheries Management is the science and art of maintaining populations of wild animals at levels consistent with the best interests of wild species and of the public. Management goals may be aesthetic, economic, or ecological. Success depends upon wildlife and fisheries biologists providing assistance; scholarly application of scientific information and methods to these goals; ecological perspective; and execution of programs to maintain past successes, to prevent repetition of past failures, and to prepare for future needs.

7. Wildlife and Fisheries Management is the science and art of maintaining populations of wild animals at levels consistent with the best interests of wild species and of the public. Management goals may be aesthetic, economic, or ecological. Success depends upon wildlife and fisheries biologists providing assistance; scholarly application of scientific information and methods to these goals; ecological perspective; and execution of programs to maintain past successes, to prevent repetition of past failures, and to prepare for future needs.
the functional requirements for work, recreation, and housing. Emphasis is on
understanding the design process and
acquiring the appropriate graphic, scientific, and technical skills. Opportunities include
landscape design services, landscape develop-
ment and maintenance, garden center
operation, allied sales, municipal and high-
way landscaping, park development, and
teaching.
Landscape construction begins with a
design plan and involves implementing the
plan with all the necessary construction
steps including earthwork, paving surfaces,
fences, pools, decks, patios, benches, and
planting installation. Students learn about
basic construction materials, drainage and
irrigation, water features, outdoor lighting and other components of landscape con-
struction.

Nursery management involves the
growing of trees, shrubs and other ornament-
amental plants for sale. Skills necessary to be a
nursery manager include horticultural knowl-
edge and management skills. Opportunities are
in nurseries, garden centers, botanical gardens, and arboreta, and in landscape maintenance and installation.
The area of floriculture includes the sci-
ence of producing flowering plants in field
and greenhouse, and the art and science of
using these plants for the benefit of humans.
Opportunities are available as greenhouse
managers, floral designers, retail salespersons,
research workers, and related commercial areas. Interiorscape design is a significant new field relating to
turfgrass. Turfgrass management includes all
aspects of growing and caring for turfgrass.
The increasing number of golf courses and
home lawns and the emphasis on better
growing conditions for turfgrasses make new opportunities for turfgrass managers. Such opportunities include golf
course superintendents, park and recreation
al turf managers, operation of a lawn or
grounds maintenance business, and sod pro-
duction. Minor in Ornamental Horticulture and Landscape Design
A minor in Ornamental Horticulture and Landscape Design shall consist of 18 hours of courses in Ornamental Horticulture and Landscape Design. The following four courses must be included: 280, 310, 330, 340. Any of the following may be taken as part of the nine additional hours: 210, 220, 230, 320, 350, 360, 370, 380, 410, 440, 450, 460, 480, 490, 493. Prerequisites, if any, to these courses will not be waived, but must be included in addition to the total of 18 hours.

**PLANT AND SOIL SCIENCE**

Professors:

J. E. Foss (Head), Ph. D. Minnesota; F. F. Bell (Emeritus), Ph. D. Iowa State; D. L. Coffey, Ph. D. Purdue; B. V. Conger, Ph. D. Washington State; H. A. Fribourg, Ph. D. Iowa State; L. M. Josephson (Emeritus), Ph. D. Wisconsin; W. L. Parks, Ph. D. Purdue; B. S. Pickett (Emeritus), Ph. D. Michigan State; J. H. Reynolds, Ph. D. Wisconsin; L. F. Seatz (Emeritus), Ph. D. North Carolina State; L. N. Skold (Emeritus), M. S. Kansas State; M. E. Springer (Emeritus), Ph. D. California (Berkeley); H. D. Swingler (Emeritus), Ph. D. Louisiana State; E. Winters (Emeritus), Ph. D. Illinois.

Associate Professors:


Assistant Professors:

J. G. Gravelle, Ph. D. Purdue; J. Logan, Nebraska; G. N. Rhodes, Jr., Ph. D. North Carolina State.

Advisors:

Allen, Coffey, Foss, Gravelle, Lessman, Reich, and Reynolds.

Plant and soil science deals with field and
vegetable crops and soil resources. Plant
science includes crop ecology and physiolo-
gy, crop breeding and genetics for crop
improvement; introduction of new varieties, crop management for high quality products, and weed control for efficient crop produc-
tion. Soil science includes studies in soil
formation and classification for better under-
standing of our soil resources; soil manage-
ment for optimum crop production, conservation and environmental quality; soil
fertility for efficient nutrient utilization; basic
studies in chemistry, physics, and biology as
they apply to the soil and to a better under-
standing of its properties and use.

The plant and soil scientist must have knowledge of the basic physical, chemical,
and biological sciences and be trained in
communication and computer skills. The sci-
entist may be broadly trained or may
specialize in a more specific phase of the
subject.

Many employment opportunities are avail-
able for the well-trained plant and soil
scientists including positions with public agen-
cies such as Agricultural Extension Services,
Soil Conservation Service, Forest Service,
Federal Credit Service, and educational insti-
tutions. Many plant and soil scientists are also employed by such organiza-
tions as technical specialists, consultants, supervisors, salespersons, appraisers, advisors, farm
managers and in international agriculture.

Students selecting this major must com-
plete the basic curriculum for the College of
Agriculture and fulfill the major group
requirements. A minor may be selected from among many related disciplines.

Required courses for a major in Plant and Soil Science are 210, 230, 430, 471 plus 3 courses from Group A and 3 courses from Group B. Of the 6 courses chosen from Groups A and B, one must be a soil science course and one must be a plant science course.


Group B: Plant and Soil Science 411, 412, 430, 493, 494, 495.

Appropriate selection of the many elect-
ives available in the Plant and Soil Science
curriculum permits students to select options that meet their interest and career goals. A departmental advisor will assist in designing a program to meet the student's individual objectives. Possible options include field
fruits, crops, vegetables, soil and water con-
servation, plant breeding, pest management, agriservices, international agriculture, etc.

A minor in Plant and Soil Science con-
stitutes of 16 credit hours including 210, 230, and at least 9 elective hours to be taken by
selecting at least one course from each of
Group A and Group B. The course Plant and Soil Science 471 will not be accepted as a course to meet minor requirements.

*Plant and Soil Science 210*.......................... 3
*Computer Science 100*............................. 3
*Electives*........................................ 3

**Junior**

*Ornamental Horticulture and Landscape Design 310, 330, 340, 370*.......................... 12
*Botany 321*........................................ 4
*Entomology and Plant Pathology 313, 321*.......................... 6
*Agriculture Elective*................................ 3
*Writing or Speech Elective*.......................... 3
*Ornamental Horticulture and Landscape Design Elective*.......................... 3

**Senior**

*Ornamental Horticulture and Landscape Design 410, 490*.......................... 4
*Ornamental Horticulture and Landscape Design Elective*.......................... 3
*Social Science or Humanities Elective*.......................... 3
*Biological Science or Physical Science Elective*.......................... 6
*Electives*........................................ 17-18

**Total: 132 hours**

*General Biology 110, 120 may be substituted for Botany only if taken before entering Ornamental Horticulture and Landscape Design.

*Students should consult with departmental advisor for suggested electives and suggested course of study.*

---

### Plant and Soil Science Electives

- **Freshman**
  - *Agriculture 101*.......................... 3
  - *English 101, 102*.......................... 6
  - *Botany 110, 120*.......................... 8
  - *Mathematics 119, 121*.......................... 6
  - *Ornamental Horticulture and Landscape Design 110*.......................... 6
  - *Ornamental Horticulture and Landscape Design 110*.......................... 6

- **Sophomore**
  - *Chemistry 100, 110*.......................... 8
  - *Economics 201*.......................... 4
  - *Speech 210 or 240*.......................... 3
  - *Ornamental Horticulture and Landscape Design 220, 260*.......................... 5

### Major Group A

- *Agriculture Elective*.......................... 3
- *Elective*........................................ 3
- *Chemistry 100, 110*.......................... 8
- *Economics 201*.......................... 4
- *Speech 210 or 240*.......................... 3
- *Biological Science or Physical Science Elective*.......................... 6
- *Electives*........................................ 17-18

### Major Group B

- *Agriculture Elective*.......................... 3
- *Elective*........................................ 3
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Chemistry 110 or 350</td>
<td>3-4</td>
</tr>
<tr>
<td>Botany 321</td>
<td>4</td>
</tr>
<tr>
<td>Plant and Soil Science Electives</td>
<td>12</td>
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</tbody>
</table>

**Senior**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Plant and Soil Science 401, 471</td>
<td>4</td>
</tr>
<tr>
<td>Animal Science Elective</td>
<td>3</td>
</tr>
<tr>
<td>Plant and Soil Science Electives</td>
<td>6</td>
</tr>
<tr>
<td>Non-Departmental Agricultural Electives</td>
<td>6</td>
</tr>
<tr>
<td>Social Science or Humanities Elective</td>
<td>2-3</td>
</tr>
<tr>
<td>Electives (open)</td>
<td>11-16</td>
</tr>
</tbody>
</table>

**Total:** 132 hours

*Students with a Mathematics ACT or 25 or more or a satisfactory placement test score should take Mathematics 151-152 or 141-142.*
The School of Architecture offers a program of professional studies which prepares its graduates for the practice of architecture.

William J. Lauer, Acting Dean

Professors:


Associate Professors:


Assistant Professors:


Instructor:

S. M. Ware, B. Arch. Tennessee.

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 philosophical and ethical issues that distinguish the architect from other professionals who serve the building industry.

Therefore, the student is regularly called upon to pay attention to cultural, social, 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. Because of the special demands an architect faces, 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 with 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 McCarry, Bullock, Holsapple, Inc. It contains as its major feature a large interior mall or street. Opening off this 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 the C. Kermit "Buck" Ewing Art and Architecture Gallery. The principal library holdings of the School are located in the James D. Hoskins Library, with additional volumes in the Undergraduate Library.

The most prominent architects from around the world are brought to the School with honor to be appointed to this lectureship. Named for the School's second dean, it has become widely recognized in the field as an honor to be appointed to this lectureship. Other important lectures are sponsored by the General Shale Corporation, the mosaic Institute and the Architecture Annual Fund. Annually in the spring term a special program, TAAST, "The Annual Architecture Spring Thing", is presented. Within a period of one week the students participate in special lectures, seminars, exhibits and informal gatherings. Featured are discussions by a series of visiting experts. TAAST is organized by the students.

FINANCIAL ASSISTANCE

A number of scholarships are made available each year through the Architecture Endowment Fund and the Tennessee Foundation for Architecture. Other scholarships have been funded by the Masonry Institute of Tennessee, the General Shale Corporation and other architectural firms, manufacturers of building materials, and other construction related industries. 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 LECTURESHP. Named for the School's second dean, it has become widely recognized 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, the Masonry Institute and the Architecture Annual Fund. Annually in the spring term a special program, TAAST, "The Annual Architecture Spring Thing", is presented. Within a period of one week the students participate in special lectures, seminars, exhibits and informal gatherings. Featured are discussions by a series of visiting experts. TAAST is organized by the students.
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.

One member of the School faculty leads a program in Europe each year at varied locations. These are designed to include visits to prominent new architectural sites and major historic locations. Most recently the School has offered a program in Yugoslavia in which students and faculty from the Universities of Belgrade and Zagreb join students and faculty from Tennessee to study.

Studies abroad, arranged to include a full semester's credit for advanced students, include design, history and theory of architecture and directed independent study.

MEMPHIS AND KNOXVILLE

COMMUNITY DESIGN CENTERS

Each year, throughout the year, advanced students may be given opportunity to work at locations off-campus while enrolled in a course; Architecture 492 Off-Campus Study or Architecture 493 Independent Study. These programs enable students to gain first-hand experience and work alongside outstanding professional architects while dealing with actual community based projects. Students may enroll in additional courses at off-campus locations to complete a full semester's program of study in keeping with curriculum requirements. During 1986-1989 the School is participating in Knoxville's "Mainstreet" program funded by the National Trust for Historic Preservation, the United States Department of Housing and Urban Development and the City of Knoxville.

GENERAL INFORMATION

Students are advised to consult the University's general requirements as stated in the front section of this catalog as well as the requirements specifically described in the School of Architecture's Student Handbook.

Self advising is not permitted in the School of Architecture. Students must plan their schedule by consulting with an assigned advisor. Electives will be chosen with the concurrence of the advisor and with full consideration of the necessary prerequisites.

FRESHMAN ADMISSION REQUIREMENTS

The School of Architecture, being a professional program and having limited resources, has restricted enrollment based on the following criteria: (1) Accept applicants with an ACT composite score of 27 (SAT 1100) or above; (2) Accept 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. A minimum ACT composite score of 20 (SAT 840) is required; (3) Refuse all applicants with an ACT composite score of 16 (SAT 720) or below; and (4) Refer applicants not falling into items 1, 2, or 3 to the Committee on Admissions which meets periodically beginning in the fall semester. Applicants will be advised promptly of the decision of the committee following receipt of high school records and test scores.

DEADLINES FOR APPLICATIONS

Deadlines for application to the School of Architecture coincide with those set forth by The University of Tennessee. All applications must be received by August 1 for fall semester admission, and no later than three weeks before the start of classes for admission to any other semester. It should be noted that due to the strong sequential character of the curriculum and certain prerequisites, entry in any semester other than fall may be difficult.

TRANSFER STUDENTS

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

REQUIREMENTS FOR PROGRESSION TO SECOND-YEAR ARCHITECTURE

(1) Satisfactory completion of first-year architecture program with grade point average at least 2.3; exceptions may be made only by petition. (2) Application for progression must be submitted no later than June 15 preceding the start of the second year. Students must maintain an overall 2.3 grade point average by the end of 32 hours attempted in order to maintain "full status" in the program. Delinquent students must be put on "temporary status" for one semester. These students will have one semester to raise the overall GPA to 2.3 or have minimum 2.3 on each semester's work until overall average is raised to 2.3. If the GPA is not brought up to 2.3, the student will be dropped from the architecture program.

THIRD-YEAR PREREQUISITES

Students are required to have all first and second-year courses satisfactorily completed before entering the third-year design courses, Architecture 371-372. Students' progress and design work in second-year will be reviewed by a committee of the faculty to determine their readiness for 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 semester.

PROGRESSION TO 400-LEVEL COURSES

Architecture students must have attained third-year standing in the School before being admitted to any 400-level course, with the exception of Architecture 400 Service Practicum. Students must complete all requirements of the curriculum through the third year before entering Architecture 471.

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 12 hours. Persons interested must obtain the consent of the School of Architecture's Academic Standards Committee and the Dean of the School of Architecture, who will approve specific programs of study proposed by students.

COURSE LOAD

The average course load in any semester 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

This option applies only to approved elective courses. Courses that are a part of the specific requirements of the School of Architecture cannot be taken as Satisfactory/No Credit.

Courses evaluated as "satisfactory" will count as hours towards graduation but will not be calculated in the student's grade point average. A student who desires to take a course S/NC should indicate this intention at the start of registration.

CURRICULA FOR ARCHITECTURE

The curriculum for the Bachelor of Architecture Degree includes a combination of required and elective courses which offer the student both a solid professional program of study and a sound general education. While the majority of the courses are designated as required, students may use the available architecture electives to expand their knowledge in areas of special interest. Academic non-architecture electives allow students to broaden their education in areas of general interest: the humanities, natural sciences, social sciences, arts and multicultural studies. All electives are to be taken only with the approval of the student's advisor.

All students studying for a Bachelor of Architecture degree will include the following requirements in their course of study, Stu-
Bachelor of Architecture as a Second Degree

**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 400.)

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 a foreign student’s continued stay in the United States.

**FIVE YEAR PROGRAM**

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>First Year</th>
<th>Second Year</th>
<th>Third Year</th>
<th>Fourth Year</th>
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<td>Architecture 101, 102</td>
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<td>Architecture 203, 204</td>
<td>4</td>
<td>Architecture 213, 212</td>
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<td>Architecture 171, 172</td>
<td>7</td>
<td>Architecture 231, 232</td>
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<td>Architecture 231, 232</td>
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<tr>
<td>English 101, 102</td>
<td>6</td>
<td>Mathematics 141, 142</td>
<td>6</td>
<td>Architecture 341, 342</td>
<td>8</td>
</tr>
<tr>
<td>History 151, 152</td>
<td>6</td>
<td>Mathematics 141, 142</td>
<td>6</td>
<td>Architecture 371, 372</td>
<td>12</td>
</tr>
<tr>
<td>Option Mathematics 121, 122</td>
<td>6</td>
<td>Further studies in architecture and is possible to complete within three years. A minimum of 6 semesters residency is required. The degree is the first professional degree recognized for purposes of eventual qualification for the license to practice architecture.</td>
<td>4</td>
<td>Architecture 471, 482</td>
<td>12</td>
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<tr>
<td>Architecture 211, 212</td>
<td>6</td>
<td>Architecture electives</td>
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<td>Architecture 231, 232</td>
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<td>Humanities/Arts elective</td>
<td>3</td>
<td>Architectural electives</td>
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<tr>
<td>Architecture 281, 282</td>
<td>10</td>
<td>Multicultural/Integrative Studies elective</td>
<td>6</td>
<td>Total: 95 hours</td>
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**SECOND DEGREE PROGRAM**

<table>
<thead>
<tr>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Architecture 213, 312</td>
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<tr>
<td>Architecture 331, 332</td>
<td>8</td>
</tr>
<tr>
<td>Architecture 341, 342</td>
<td>8</td>
</tr>
<tr>
<td>Architecture 371, 372</td>
<td>12</td>
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</tbody>
</table>

Total: 150 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 in another field.

This program begins with intensive initial studies in architecture and is possible to complete within three years. A minimum of 6 semesters 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. Credit for a year of each of calculus and physics at the college level is a prerequisite for admission to the program. Appropriate goals and abilities must be shown by the applicant as well.

Second Degree students are required to submit a portfolio which demonstrates a proficiency in freehand and constructed drafting techniques prior to taking Architecture 281 Second Degree Program: Design I. If an otherwise qualified student does not have these skills, he or she can come to the School of Architecture the summer before entering the Second Degree Program and take an intensive drawing course which will fulfill the prerequisite.

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

2To be admitted to the third year the student must submit work for review by a designated committee of faculty of the School. A GPA of 3.0 in Architecture 281, 282, 371, 372 is required along with an overall 2.5 GPA.
success in placing our graduates with local, regional, and national employers, and in the record of our graduating seniors on the nationwide Business Assessment Test, administered by the Educational Testing Service, which placed UTK students well within the top twenty percent of business school seniors nationally.

STUDENT ADVISING CENTER
The College maintains a Student Advising Center staffed with full-time academic advisors to assist freshman and sophomore students with their programs. Students who have been admitted to a major are advised by faculty members from the selected major. The objective of the Advising Center is to provide students with the academic information they need.

PROGRESSION STANDARDS
Admission to the College of Business Administration does not guarantee acceptance into the chosen major. Admission to the upper-division (major) is based on the availability of space in the College as a whole and in the major requested. The academic progress of those admitted to the College is evaluated periodically. Those failing to make acceptable progress toward meeting the standards for progression to the upper-division are encouraged to seek alternative educational opportunities. Progression standards are adjusted periodically and current requirements can be determined by consulting with an advisor in the Undergraduate Programs Office.

PREMAJORS
Students who enter the College of Business as freshman or sophomores must apply for a major the semester after attempting 45 hours. The academic record presented will be assessed by the Associate Dean for Undergraduate Programs. The following minimum requirements must have been met in order to be considered for admission to a major:

UNDERGRADUATE PROGRAMS
General education, a business "core," and area specialization: this trinity underlies the UTK business program. Building on a firm foundation in written and oral communications, mathematical and statistical methods, and an understanding of the methodology and accomplishments of the social, behavioral, and natural sciences, the business core seeks to expose students to the realms of financial and managerial accounting, micro- and macro-economics, and the functional fields of business. Specialization comes through intensive study in one of the seven majors offered.

The combination of breadth and depth in the undergraduate program produces graduates who are prepared to grow in their personal and professional lives and employees who are well educated in one of the professional or functional fields of business. In the preparation of graduates for roles in society, the size of the college is an important advantage. Included among the nearly 140 faculty are many generalists, but also a rich variety of those with specialized knowledge and interests. Furthermore, the comprehensive nature of the University and the combined teaching/research/service mission of the institution and the college mean that the faculty are almost certainly on the cutting edge of their disciplines.

While size and diversity can be important advantages, those advantages can be overwhelming if the personal touch is lost. In an attempt to avoid the pitfall of impersonal education, the college embarked in the fall of 1980 on a plan of administered enrollments, designed to assure that the numbers enrolled would not exceed the limited capacity of the college to provide a quality education. The plan calls for admission to the programs of the college in two stages: at the lower division level (freshmen and sophomores) and at the upper division level (juniors and seniors). Admission to the upper division is limited to those who have successfully completed the prescribed lower division courses, who have shown seriousness of interest and purpose, and who have records of substantial academic achievement.

A further aspect of the college which helps in the development and maintenance of "personal scale" is found in the many student organizations in the college. More than a dozen clubs and professional fraternities and sororities represent a broad spectrum of student interest and provide continuing opportunities for the development of leadership skills and involvement with small groups on an intensive basis.

Success of any academic program is both difficult to define and hard to measure. In the final analysis, the building of character is probably the most valuable product of academe. On a more mundane level, however, we take a great deal of pride in our
1. Must have followed a business curriculum.
2. Must have earned a minimum 2.75 average, cumulative, over the courses specifically required in the lower-division of that curriculum, excluding non-business and non-departmental electives. Some majors may have differing average requirements.
3. The overall record will be evaluated for quality and seriousness of purpose. An excessive number of withdrawals, incompletes, repeated courses or failures may result in denial of progression.
4. Progression standards are subject to change; current standards are available in the Undergraduate Programs Office, Glocker 52.

**TRANSFERS FROM OTHER UTK PROGRAMS**

Students in other colleges at UTK must apply for progression to a major in the College of Business Administration at the earliest possible date but definitely prior to 75 hours. As a minimum, all students must be admitted to a CBA major for at least the last 30 hours of work. Only in exceptional cases will application be considered after 75 hours of coursework (at UTK or elsewhere) have been attempted. It should not be supposed that admission must be granted to those who accumulate a substantial number of hours in the CBA courses. On the contrary, an academic record reflecting substantial work after 75 hours in the Business Administration curriculum may be taken as prima facie evidence of an intent to evade this policy and may result in denial of admission.

The following minimum requirements must have been met in order to be considered for admission to a major:
1. Must have earned a minimum 2.75 average, cumulative, over the courses specifically required in the lower-division of that curriculum, excluding non-business and non-departmental electives. Some majors may have differing average requirements.
2. The overall record will be evaluated for quality and seriousness of purpose. An excessive number of withdrawals, incompletes, repeated courses or failures may result in denial of progression.
3. Progression standards are subject to change; current standards are available in the Undergraduate Programs Office, Glocker 52.

**APPEALS**

The College has established a Progression Appeals Committee to which those students who have been denied progression may address an appeal. Information on the appeals process may be obtained by calling the Undergraduate Programs Office, 974-5096, or contacting an advisor in that office.

**BUSINESS MINOR FOR NON-BUSINESS STUDENTS**

Students in other Colleges at UTK who wish to obtain a minor in Business Administration must successfully complete the following required courses: Accounting 201-202, Economics 201, and Statistics 201.

Additionally, 12 hours of upper-division business electives must be taken at UTK. No more than three upper-division hours of accounting, economics, or statistics may be used for this minor. Students are responsible for meeting listed prerequisites of 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 semester is 15-18 hours. In unusual circumstances permission to take a course load in excess of this maximum may be granted by the Associate Dean for Undergraduate Programs in Business Administration.

**SATISFACTORY/NO CREDIT**

A maximum of 20 credit hours of satisfactory/no credit (S/NC) courses may be used toward degree requirements for a Bachelor of Science in Business Administration. Such credit hours may be used to meet only the requirements identified in the curriculum as "business or non-business electives," plus any business courses specifically designated as being available for S/NC grading.

**BUSINESS CORE REQUIREMENTS**

The following core courses are required in all business curricula: Computer Science 100 or 102, Economics 201, Statistics 201, Accounting 201-202, Marketing 301, Finance 301, Business Law 301, Management 301-303, 401. Students are advised to consult the University’s degree requirements as stated in the front section of this catalog as well as the requirements for the college or department.

**GENERAL EDUCATION REQUIREMENTS**

The following courses are in fulfillment of the University General Education Standards and are required of all business students. Specific courses to fulfill an area may be required by individual curricula:
- English (6 hours) to be fulfilled by English 101-102;
- Mathematics (8 hours) to be fulfilled by Mathematics 121-122, or 141-142;
- Communication Skills (3 hours) to be fulfilled by courses from English, Speech Communications and Theatre. Consult an advisor in Glocker 52 for specific courses. In addition, at least two courses in each CBA program will contain a substantial writing assignment and be so identified in the catalog. This requirement may consist of a term paper, project, or comprehensive exam.
- Humanities (9 hours) to be fulfilled by courses selected from Philosophy, Religious Studies, Art, Music, Literature.

Consult an advisor in Glocker 52 for specific courses.

History (6 hours) to be fulfilled by courses selected from Biology, Astronomy, Botany, Chemistry, Geology, Physics, Zoology. Consult an advisor in Glocker 52 for specific courses.

Natural Science (6 hours) to be fulfilled by courses selected from Anthropology, Geography, Human Services, Linguistics, Political Science, Sociology. Consult an advisor in Glocker 52 for specific courses.

Economics majors must take 6 hours of University Studies or Intermediate level foreign language.

**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 semester or summer term. A second is through group programs conducted abroad by another academic institution 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. The nature of this work as well as credit for it should be negotiated by students prior to departure with the appropriate department. Students should register for credit under the Foreign Study number BA 491. Credit will be awarded only after completion of all agreed upon requirements.

**OFF-CAMPUS STUDY**

Recognizing that learning is not restricted to formal class room situations, the college provides for students to earn credit toward graduation for approved off-campus study. Such study may be undertaken only with prior approval of the faculty member and the department of the student’s major. It may include certain kinds of work experiences, community involvements, etc. Students should register for credit under the Off-Campus Study number BA 492. Credit will be awarded only after completion of all agreed upon requirements.

**INDEPENDENT STUDY**

Certain educational goals may best be met through independent study done by an individual under the direction of a faculty member. Students who wish to do such independent work should obtain the approval of the faculty members and the departments concerned prior to embarking upon their study. Students should register for credit.
under the Independent Study number BA 493, or the appropriate number in the Department. Credit will be awarded only after completion of all agreed upon requirements.

**ACCOUNTING AND BUSINESS LAW**


Distinguished Lecturer:  S. B. Wolfe (Emeritus), B. S. Virginia Polytechnic.

Lecturer:  H. N. Hughes, B. S. Tennessee.

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Freshman</th>
<th>Sophomore</th>
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<tr>
<td>English 101, 102</td>
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<tr>
<td>Mathematics 121, 122</td>
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<td>Accounting 201, 202</td>
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<td>Statistics 201, 221</td>
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<td>General Education</td>
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<tr>
<td>Junior</td>
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<tr>
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<tr>
<td>Marketing 301</td>
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<td>Finance 301</td>
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<tr>
<td>Management 301, 303</td>
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<td>Business Law 301</td>
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<td>Accounting 431, 411, 414</td>
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<tr>
<td>Total: 123 hours</td>
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</table>

*Students with a strong interest in mathematics and those planning graduate study are encouraged to substitute Mathematics 141, 142, and 251 (4,4,3) for a total of 11 hours. Five semester hours credit may be applied toward general education (non-business) electives.

*Consult an advisor in Glocker 52 for specific courses.

*Courses to be selected to meet the general education requirements of the University: Humanities 9 hours, Social Science 6 hours (one course in Political Science and one course from Anthropology, Psychology, or Sociology), and Non-business elective 6 hours.

**ECONOMICS**

Professors:  A. Mayhew (Head), Ph. D. Texas; R. A. Bohrm, Ph. D. Washington (St. Louis); R. L. Bowltby, Ph. D. Texas; S. L. Carroll, Ph. D. Harvard; H. S. Chang, Ph. D. Vanderbilt; W. E. Cole, Ph. D. Texas; P. Davidson (John Fred Holy Professor of Political Science), Ph. D. Pennsylvania; G. R. Feiwel (Alumni Distinguished Service Professor), Ph. D. McGill; C. B. Garrison, Ph. D. Kentucky; H. W. Herzog, Jr., Ph. D. Maryland; H. E. Jensen, Ph. D. Texas; F. Y. Lee, Ph. D. Michigan State; J. R. Moore (Associate Dean), Ph. D. Cornell; W. C. Neale, Ph. D. London School of Economics; K. E. Quindry (Emeritus), Ph. D. Kentucky; A. M. Scholtmann, Ph. D. Washington (St. Louis); G. A. Spiva, Jr., Ph. D. Texas.

Research Professor:  W. F. Fox, Ph. D. Ohio State.

Associate Professors:  D. D. Clark, Ph. D. Michigan State; E. Giusustof, Ph. D. Stanford; K. E. Phillips, Ph. D. Washington (Seattle).

Research Associate Professor:  J. W. Mayo, Ph. D. Washington (St. Louis).

Assistant Professors:  J. A. Gauger, Ph. D. Iowa State; M. Kunkin, Ph. D. Wisconsin; D. M. Mandy, Ph. D. Illinois; J. W. Mayo, Ph. D. Washington (St. Louis); M. N. Murray, Ph. D. Syracuse.

<table>
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<tr>
<th>Hours Credit</th>
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<th>Sophomore</th>
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<tr>
<td>English 101, 102</td>
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<td>Accounting 311, 312, 321, 341</td>
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<td>Total: 123 hours</td>
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*Consult an advisor in Glocker 52 for specific courses.

**FINANCE**

Professors:  H. A. Black (Head), Ph. D. Ohio State; W. W. Dotterweck (William Voigt Professor of Insurance), Ph. D. Pennsylvania; W. C. Goolsby, Ph. D. Wisconsin; G. C. Philippatos (Distinguished Chaired Professor of Banking and Finance), Ph. D. New York; R. E. Schieves, Ph. D. California (Los Angeles); C. P. White (Emeritus), Ph. D. Pennsylvania.

Associate Professors:  A. L. Auxier, Ph. D. Iowa; T. P. Boehm, Ph. D. Washington; R. J. Clayton, Ph. D. Georgia; J. M. Wachowicz, Jr., Ph. D. Illinois (Urbana), C. P. A.

Assistant Professors:  M. C. Ehrhardt, Ph. D. Georgia Tech; D. C. Ketcham, Ph. D. Pennsylvania State; J. P. Ogden, Ph. D. Purdue; J. L. Trimble, Ph. D. Texas A&M; A. L. Tucker, Ph. D. Florida State.

<table>
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<tr>
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<td>English 101, 102</td>
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<td>Senior</td>
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<td>Business Law 301</td>
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<td>Finance Electives</td>
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<td>Non-Business Electives</td>
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<td>Business Electives</td>
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* To be selected from: Economics 381, 482, Statistics 221, 411.

**GENERAL BUSINESS**

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<th>Hours Credit</th>
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<th>Sophomore</th>
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<td>English 101, 102</td>
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<tr>
<td>Total</td>
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<td>121 hours</td>
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</tbody>
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Computer Science 100 or 102  4
Alabama; S. K. Reed (Emeritus), Ph. D.
A. H. Keally (Emeritus), M. B. A. (Management Science), Ph. D. Stanford;
Science electives.
3AII electives required in the junior and senior years
Consult an advisor in Glocker 52.
consist of courses at the 200 level or higher.
six hours of courses with international emphasis.
2To be fulfilled by six hours of foreign language or
courses.
Business Elective 3
Social Science Elective 3
Statistics Electives 3
Finance Electives 6
Management 401  3
Senior
Business Elective 3  3
Finance Elective 3
Accounting Elective 3
Management 301,303  6
Business Law 301  3
Management Elective 3
Accounting Elective 3
Business Elective 3
Non-Business Elective 3
Total: 121 hours
1Consult an advisor in Glocker 52 for specific courses.
2To be fulfilled by six hours of foreign language or
six hours of courses with international emphasis.
Beginning Fall Semester, 1989 the language must
consist of courses at the 200 level or higher.
Consult an advisor in Glocker 52.
All electives required in the junior and senior years
must be 300 or 400 level courses with the
exception of non-business, humanities, and social
science electives.

MANAGEMENT

Professors:
R. W. Boling (Emeritus), Ph. D. Stanford;
H. D. Dewhurst, Ph. D. Texas; M. K. Ho
(Management Science), Ph. D. Stanford;
A. H. Keally (Emeritus), M. B. A.
Pennsylvania; J. M. Larsen, Jr., (Emeritus),
Ph. D. Purdue; C. W. Neel (Dean), Ph. D.
Alabama; S. K. Reed (Emeritus), Ph. D.
Edinburgh; D. Reese (Emeritus), Ph. D. Iowa;
S. C. Vance, William B. Stokely Professor of
Strategic Management (Emeritus), Ph. D.
Pennsylvania; G. A. Wagoner (Emeritus),
M. H. Patel (Management Science), Ph. D.
North Carolina (Chapel Hill); R. L. Jenkins
(Associate Dean), Ph. D. Pennsylvania;
C. J. Langley, Jr., Ph. D. Pennsylvania State;
W. B. Locander (Distinguished Professor),
Ph. D. Illinois; R. A. Mundy, Ph. D.
Pennsylvania State; E. P. Patton, Ph. D.
North Carolina (Chapel Hill); R. B. Woodruff,
D. B. A. Indiana.

Associate Professors:
O. S. Fowler (Acting Head) (Management Science), Ph. D. Georgia; G. H. Dobkins,
Ph. D. Virginia Polytechnic; K. C. Gilbert
(Chair, Management Science Program), Ph. D. Tennessee; R. T. Ladd, Ph. D.
Georgia; R. C. Maddox; Ph. D. Texas;
M. C. Rush (Chair, Industrial-Organizational
Psychology Program), Ph. D. Akron;
J. E. A. Russell, Ph. D. Akron.

Assistant Professors:
M. Bowers (Management Science), Ph. D.
Clemson; P. G. Campbell, M. S. Austin Peay;
D. R. Fox (Management Science), Ph. D.
Purdue; G. E. Fryxell, Ph. D. Indiana;
R. C. Hudson, M. B. A. Minnesota; L. Kaplan

(Management Science), Ph. D. Michigan;
A. Miller, Ph. D. Washington; C. E. Noon
(Management Science), Ph. D. Michigan;
M. H. Patel (Management Science), Ph. D.
Georgia Institute of Technology.

Hours Credit
Freshman
English 101, 102  3
Mathematics 121, 122  6
Natural Science 3
Science electives.
3AII electives required in the junior and senior years
Consult an advisor in Glocker 52.
consist of courses at the 200 level or higher.
six hours of courses with international emphasis.
2To be fulfilled by six hours of foreign language or
courses.

MANAGEMENT SCIENCE PROGRAMS

Professor:
J. K. Ho, Ph. D. Stanford.

Associate Professor:
K. C. Gilbert (Chairperson), Ph. D.
Tennessee.

Assistant Professor:
D. R. Fox, Ph. D. Purdue.

GRADUATE Consult the Graduate Catalog for information on graduate programs.

MARKETING, LOGISTICS, AND TRANSPORTATION

Professors:
D. J. Barnaby (Head), Ph. D. Purdue;
E. R. Cadotte, Ph. D. Ohio State; F. W. Davis,
Jr., Ph. D. Michigan State; G. N. Dicer,
D. B. A. Indiana; J. L. Frye (Emeritus), Ph. D.
Florida; F. L. Hendrix (Emeritus), Ph. D. North
Carolina (Chapel Hill); R. L. Jenkins
(Associate Dean), Ph. D. Ohio State;
C. J. Langley, Jr., Ph. D. Pennsylvania State;
W. B. Locander (Distinguished Professor),
Ph. D. Illinois; R. A. Mundy, Ph. D.
Pennsylvania State; E. P. Patton, Ph. D.
North Carolina (Chapel Hill); R. B. Woodruff,
D. B. A. Indiana.

Associate Professors:
J. H. Foggin, Ph. D. Indiana; J. R. McMillan,
Ph. D. Ohio State; R. C. Reizenstein
(Associate Dean), Ph. D. Cornell, J. O. Rentz,
Ph. D. Georgia.

Assistant Professors:
S. F. Gardial, Ph. D. Houston; D. J. Faulds,
Ph. D. Iowa; D. W. Schumann, Ph. D.
Missouri (Columbia); P. S. Speck, Ph. D.

Texas Technological

LOGISTICS AND TRANSPORTATION

Hours Credit
Freshman
English 101, 102  6
Mathematics 121, 122  6
Natural Science 3
Science electives.
3AII electives required in the junior and senior years
Consult an advisor in Glocker 52.
consist of courses at the 200 level or higher.

MARKETING

Hours Credit
Freshman
English 101, 102  6
Mathematics 121, 122  6
Natural Science 3
Science electives.
3AII electives required in the junior and senior years
Consult an advisor in Glocker 52.
consist of courses at the 200 level or higher.

Total: 121 hours
1Consult an advisor in Glocker 52 for specific courses.
2Concentration and/or elective courses as specified by the advisor.

Total: 121 hours
1Consult an advisor in Glocker 52 for specific courses.
2Upper division Statistics course.
3Management electives: Any Management courses
or other courses as approved by the department.

Total: 121 hours
1Consult an advisor in Glocker 52 for specific courses.
2Upper division Statistics course.
3Management electives: Any Management courses
or other courses as approved by the department.

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1Consult an advisor in Glocker 52 for specific courses.
2Upper division Statistics course.
3Management electives: Any Management courses
or other courses as approved by the department.
2Concentration and/or elective courses specified by the department.

## PUBLIC ADMINISTRATION

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<td>Freshman</td>
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<tr>
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<td>Natural Science</td>
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<td>General Education 1</td>
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<td>Computer Science 100 or 102</td>
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<td>Sophomore</td>
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<td>Business Law 301</td>
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<td>Total: 121 hours</td>
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</table>

1Consult an advisor in Glocker 52 for specific courses.
2Electives approved by the department.

## STATISTICS

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<tr>
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<th>Hours</th>
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<tr>
<td>Computer Science 100 or 102</td>
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<td>Sophomore</td>
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<td>Accounting 201, 202</td>
<td>6</td>
<td></td>
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<tr>
<td>Economics 201</td>
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<td>Management 301, 303</td>
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<td>Business Law 301</td>
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<td>6</td>
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<tr>
<td>Total: 121 hours</td>
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</tbody>
</table>

1Technical electives will be determined by student's advisor.

## CENTER FOR BUSINESS AND ECONOMIC RESEARCH

**Staff:**
- D. A. Hake (Director), Research Professor, Ph. D. Tennessee
- K. E. Quindry (Emeritus), Research Professor, Ph. D. Kentucky
- W. F. Fox, Associate Director, Research Professor, Ph. D. Ohio State
- S. E. Bott, Research Assistant, B. S. Nebraska (Lincoln)
- J. W. Mayo, Research Professor, Ph. D. Washington (St. Louis)
- B. B. Vickers, Research Associate, B. A. Mary Washington
- P. A. Price, Research Associate, B. S. Tennessee
- M. J. Cornellus, Research Associate, M. S. Tennessee
- C. E. Lammers, Research Associate, B. A. North Carolina
- P. M. Gilmore, Research Associate, B. A. Pittsburgh
- V. C. Cunningham, Research Assistant
- D. M. Mandy, Research Assistant Professor
- M. N. Murray, Research Assistant Professor
- M. A. Wood, Research Assistant
- P. L. Bridgeman, Research Assistant
College of Communications

Kelly Leiter, Dean
Herbert H. Howard, Assistant Dean for
Graduate Studies and Research
Gail Palmer, Advisor

Communications media are a vital force in today's complex society. As a result, programs in the College of Communications acquaint students with the communications process and prepare them for professional work in many fields.

The College includes the School of Journalism and the Departments of Advertising and Broadcasting. The three academic divisions have a common core curriculum. That permits specialization at the junior and senior level.

The advertising, broadcasting, news-editorial, public relations and master’s programs are accredited by the Accrediting Council on Education in Journalism and Mass Communications.

The College is a member of the Association of Schools of Journalism and Mass Communication and of the Broadcast Education Association.

SATISFACTORY/NO CREDIT OPTION

This option applies only to general elective courses. No course that is a part of the specific requirements of the College of Communications or a 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 as S/NC.

Courses evaluated as "satisfactory" will count as hours toward 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 S/NC to regular credit or from regular credit to S/NC after the deadline for adding courses.

COURSE LOAD

The maximum number of hours an undergraduate may take without special permission is 18 hours. Permission to take 19 or more hours must be obtained from the dean or the undergraduate advisor with the recommendation of the student's advisor and department chairman or school director.

REQUIREMENTS FOR ALL CURRICULA

CORE COURSES

All students in the College take the following core courses:

- Communications 100 - Introduction to Mass Communications
- Communications 200 - Writing for Mass Communications
- Communications 300 - Mass Communications Research Methods
- Advertising 340 - Advertising Research Methods
- Communications 400 - Mass Communications Law and Ethics

REQUIREMENTS FOR GRADUATION

The Bachelor of Science in Communications is awarded to majors who complete a program of 128 hours prescribed under departmental requirements listed below. At least 90 of those hours must be taken in courses other than the major or related communications fields. At least 18 of the hours in the major must be taken at The University of Tennessee, Knoxville. Normally no more than 14 transfer credits in the major will be applied to the 128 hours.

PROGRESSION REQUIREMENTS

Entering freshmen are associated with the College as Pre-Majors. They may progress to a major in the School of Journalism or the Departments of Advertising or Broadcasting after they:

1. Pass Qualifications Examinations (should be accomplished) within the first 30 hours demonstrating proficiencies in spelling, grammar and typing. Students who have not passed the examination after three attempts must wait six months before attempting to pass the examination again, or present evidence of successful completion of specific remedial work. Students who do not pass the Qualification Examinations after a fourth attempt will be required to seek a major in another college.

2. Complete at least 30 hours of prescribed coursework with a 2.3 cumulative GPA.

3. Complete Communications 100 (Introduction to Mass Communications) with at least a "C" grade.

4. Submit an application form to the appropriate School or Department. Students who have not met these standards may remain in the College as Pre-Majors. They may enroll in non-communications courses but may not enroll in courses in the College numbered 300 or above.

Students who do not progress to a major by the time they have accumulated 80 credit hours will be dismissed from the College. Students must earn at least a "C" grade in all College of Communications courses used to fulfill graduation requirements.

During their last 32 hours prior to graduation, all students must have been accepted as majors in the College.

TRANSFER STUDENTS

Students from other colleges within the University are eligible to progress to a major in the College of Communications as soon as they pass the Qualifications Examination, complete at least 30 hours of prescribed coursework with a 2.3 cumulative GPA and complete Communications 100 (Introduction to Mass Communications) with at least a "C" grade and make application to the appropriate Department or School.


**COMMUNICATIONS**

Professors:

P. G. Ashdown, Ph. D. Bowling Green; J. A. Crook, Ph. D. Iowa State; G. A. Everett, Ph. D. Iowa; H. H. Howard, Ph. D. Ohio; B. K. Leiter, Ph. D. Southern Illinois; N. R. Swan, Jr., Ph. D. Missouri.

Associate Professors:

D. A. Bowles, Ph. D. Wisconsin (Madison); M. T. Miller, Ph. D. Michigan State; M. W. Singletary, Ph. D. Southern Illinois; R. E. Taylor, Ph. D. Illinois.

**BROADCASTING**

Professors:

D. W. Holt (Emeritus), Ph. D. Northwestern; H. H. Howard, Ph. D. Ohio; N. R. Swan, Jr. (Head), Ph. D. Missouri.

Associate Professor:

B. A. Moore, Ph. D. Ohio.

Assistant Professors:

J. G. Buchman, Ph. D. Indiana; D. Ziegler, Ph. D. Southern Illinois.

**ADVERTISING**

Professor:

R. Joel (Emeritus).

Associate Professors:

D. Jackson, M. S. Tennessee; M. J. Stankey, Ph. D. Illinois; R. E. Taylor (Head), Ph. D.

**NEWS-EDITORIAL CONCENTRATION**

<table>
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<th>Credit</th>
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<tbody>
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<td>English 101, 102</td>
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<tr>
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<td>History 151, 152</td>
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<tr>
<td></td>
<td>Foreign Language (Intermediate Competency)</td>
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<td>Mathematics 110</td>
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<td>Philosophy or Mathematics Elective</td>
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<td>Political Science 101</td>
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<td></td>
<td>Communications 200</td>
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<tr>
<td></td>
<td>Broadcasting 203</td>
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<td></td>
<td>Speech 210</td>
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<tr>
<td></td>
<td>Consumer Behavior 310</td>
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<td></td>
<td>Strategic Management 310</td>
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<td>Professional Sales 310</td>
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<tr>
<td></td>
<td>Professional Electives</td>
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<td>Total: 128 hours</td>
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**SCHOOL OF JOURNALISM**

Professors:

J. N. Adamson, M. S. Tennessee; J. A. Crook (Director), Ph. D. Iowa State; P. G. Ashdown, Ph. D. Bowling Green; G. A. Everett, Ph. D. Iowa; B. K. Leiter, Ph. D. Southern Illinois (Meeman Distinguished Professor); M. W. Singletary, Ph. D. Southern Illinois.

Adjunct Professor:

Alex Haley

Associate Professors:

D. A. Bowles, Ph. D. Wisconsin (Madison); M. Miller, Ph. D. Michigan State; J. L. Morrow, Ph. D. Toledo; S. L. Puetz, M. S. Tennessee.
<table>
<thead>
<tr>
<th>Year</th>
<th>Course</th>
<th>Hours</th>
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<tr>
<td>Junior</td>
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<td>Communications 300</td>
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<td>Journalism Elective*</td>
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<td></td>
<td>Marketing 301</td>
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<td></td>
<td>English Literature*</td>
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<td>Political Science Elective*</td>
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<td>Business Administration Elective*</td>
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<td></td>
<td>General Elective</td>
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<td>Senior</td>
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Total: 128 hours

2 Six hours at the 200 level or above of the same language.
3 Mathematics or Philosophy electives: Mathematics elective or Philosophy 135.
4 Journalism electives: Journalism 310, 412, 414, 433.
6 Political Science electives: Political Science 315, 320, 321.
7 Business Administration electives: Marketing 310; Management 301; Economics 325.
8 Communications electives: Must be approved by advisor.
10 Humanities Electives - Art, Classics, Drama, English, Music, Philosophy, Religious Studies.
The College of Education

Richard Wisniewski, Dean
Thomas W. George, Associate Dean for Undergraduate Studies
Timothy J. Pettibone, Associate Dean for Research
C. Glennon Rowell, Associate Dean for Graduate Studies

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 and to improve the teaching profession by continually upgrading its membership. The College of Education was established in 1926, and all teacher preparation majors at The University of Tennessee are now coordinated within its eight departments. In 1984 the Institute for Teacher Education was established within the College of Education. The Institute has been responsible for implementing a series of reforms across all teacher education preparation majors. These reforms include increased admission standards, increased general education, redesigned professional education, and the creation of a mentoring team approach to undergraduate advising and progression through the major. In addition to teacher education majors, the College of Education has several non-teacher education majors. These majors include, but are not limited to, Dance, Industrial Education, Industrial Training, Physical Fitness, Public Health, Recreation, Sports Communication, Sports Management, and Human Services.

The College of Education holds membership in the American Association of Colleges for Teacher Education. All certification and degree programs through the doctoral level are fully accredited by the National Council for Accreditation of Teacher Education, the Southern Association of Colleges and Schools, and the Tennessee State Department of Education.

The faculty of the College of Education is committed to performing three major functions: (1) to provide professional preparation for teachers, administrators, and school service personnel at undergraduate and graduate levels; (2) to collaborate with school personnel, educational agencies, professional groups, and others interested in the evaluation and improvement of educational opportunities, programs, and services; and (3) to promote and conduct experimental and research studies in education.

The teacher preparation programs represent utilization of University-wide resources and cooperation of all appropriate units. Certain requirements are of basic importance: A broad cultural background in the arts and sciences (general education), mastery of professional knowledge and skills, and thorough preparation of specific teaching fields.

Through a carefully planned program of combined academic and direct experiences, the prospective teacher acquires a depth and breadth of knowledge and understanding superior to that of the typical college graduate-superior in cultural and citizenship appreciation as well as in professional and scholarly accomplishment.

The Claxton Education Building 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 Instructional Services Center, the Reading Center, the Curriculum Laboratory, the Teacher Simulation Laboratory, and the Bureau of Educational Research and Service.

Requirements for All Teacher Education Curricula

The following professional core is required of students seeking teacher certification: Educational Curriculum and Instruction 302 (3), 303 (1), 304 (1), 402 (1): Educational and Counseling Psychology 315 (3), 325 (2); and Special Education 370 (2).

Progression toward Degree Completion and/or Certification in Teaching Fields

Progression toward completion of a degree and/or certification in a teaching field requires acceptance to the Teacher Education Program by a board of admissions. The admissions process begins at the time of matriculation to UTK, whether the student enters as a freshman, or transfer student.1

Minimum Requirements

Applicants will be evaluated by a board of admissions upon attainment of the following minimal criteria:

1 Academic Achievement: Applicants will be required to earn a minimum 2.5 undergraduate cumulative GPA. GPA computations, which include transfer grades, will be made at the time other requirements, listed below, are completed but not before the completion of at least 45 hours of academic work. Any professional education course, taken either before or after admission, must be passed with a minimum letter grade of 'C', otherwise such a course must be repeated.

If this standard is not met: The applicant will improve his/her academic record by adding or repeating courses.

2 Pre-Professional Skills Test: The applicant will attain the minimum scores established by the State Board of Education on the Pre-Professional Skills Test.

1Community college students who anticipate transferring to the College should arrange to complete the admission to Teacher Education process prior to matriculating at UTK. Students should contact the Education Advising Center, 214 Claxton Addition.

2Students seeking admission to the following program areas, in addition, must complete specific courses before being granted a board review: (a) Mathematics Education - Mathematics 141-142; (b) Science Education - 8 semester hours of any laboratory science; (c) Music Education - at least one semester of applied study of music at the 200 level and Music Theory 210.
If this standard is not met: The applicant will retake the PPST until passed. (Note that it is not necessary to repeat subtests which were previously passed.)

(3) Hearing and Speech Evaluations: The applicant will perform within normal limits on hearing and speech evaluations.

If this standard is not met: The applicant will participate in therapy, as specified by and provided through the University’s Hearing and Speech Center.

(4) Conduct Record: Each applicant will be screened by the University’s Conduct Office. Applicants who have established records of inappropriate conduct will be evaluated by the College’s Teacher Education Standards Committee.

If this standard is not met: The applicant’s disposition will be determined by the Teacher Education Standards Committee.

PROGRAM PROGRESSION

Professional Education courses.

Students who are admitted, thus, may be required to participate in remedial courses and/or activities prior to re-enrolling in student teaching or internship.

Additional academic requirements, include attainment of the following minimal levels of academic achievement: (a) 2.5 undergraduate cumulative GPA and specific teaching field (major) courses; and (b) 2.8 GPA in professional education courses.

Students seeking authorization to enroll in student teaching or internship must apply at least one calendar year prior to the term of intended student teaching or internship.

Students must attain the following minimum requirements to qualify for the College’s recommendation for certification:

(1) Academic achievement: Only those students who perform satisfactorily in student teaching or internship will be recommended for certification. Students who perform unsatisfactorily may be provided another opportunity to succeed. (Such students may be required to participate in remedial courses and/or activities prior to re-enrolling in student teaching or internship.)

Additional academic requirements, include attainment of the following minimal levels of academic achievement: (a) 2.5 undergraduate cumulative GPA and specific teaching field (major) courses, and (b) 2.8 GPA in professional education courses (“D” and “F” course grades must be repeated).

Students should note that the most important criterion in placing student teachers or interns in the public schools is the potential value of the placement to the student’s professional development. Therefore, the College cannot guarantee the students’ preferences regarding specific geographic placement will be granted.

PROGRESSION TO STUDENT TEACHING OR INTERNSHIP

Students seeking authorization to enroll in student teaching or internship must apply at least one calendar year prior to the term of intended student teaching or internship.

For example, students desiring to teach grades kindergarten through eight, grades nine through twelve language arts, and special education; (c) at least four semester hours in each area of endorsement; (d) at least one two-semester hours methods course in each area of endorsement; (e) at least one two-semester hours methods course concerning the learning and behavioral characteristics of handicapped students; (c) at least four semester hours in methods of teaching reading for applicants desiring certification to teach grades kindergarten through eight, grades nine through twelve language arts, and special education; two semester hours in teaching reading in content areas for all other applicants; and (d) fulfillment of all special recommendations of the student’s mentoring team.

(6) Classification (minimal) as a senior-level student (i.e. at least 90 semester hours passed).

(7) Possession of the following minimum grade point averages: (a) 2.5 undergraduate cumulative GPA, (b) 2.5 GPA in Specific Teaching Field, and (c) 2.8 GPA in Professional education courses (i.e., grades of “D” and “F” must be repeated).

(8) Recommendation by the student’s faculty mentoring team to enroll in student teaching or internship.

In addition, any record established by the student in the Office of Student Conduct will be reviewed by the Teacher Education Standards Committee.

Student teaching or internship is evaluated on a satisfactory/no credit basis and the hours are included in the University policy requiring a 2.0 in the last 30 hours of course work.

Students should note that the most important criterion in placing student teachers or interns in the public schools is the potential value of the placement to the student’s professional development. Therefore, the College cannot guarantee the students’ preferences regarding specific geographic placement will be granted.

CERTIFICATION

Students must attain the following minimum requirements to qualify for the College’s recommendation for certification:

(1) Academic achievement: Only those students who perform satisfactorily in student teaching or internship will be recommended for certification. Students who perform unsatisfactorily may be provided another opportunity to succeed. (Such students may be required to participate in remedial courses and/or activities prior to re-enrolling in student teaching or internship.)

Additional academic requirements, include attainment of the following minimal levels of academic achievement: (a) 2.5 undergraduate cumulative GPA and specific teaching field (major) courses, and (b) 2.8 GPA in professional education courses (“D” and “F” course grades must be repeated).

(2) National Teacher Examinations (NTE): All candidates for certification are required to attain the minimum scores, as determined by the State Board of Education, on the NTE: Core Battery (General Knowledge, Communications Skills, and Professional Knowledge) and the appropriate NTE Specialty Area Test (or equivalent).

Complete details regarding the NTE are available in the Education Advising Center, 214 Claxton Addition.

Additional certification requirements include the successful completion of: (a) a methods course in each area of endorsement; (b) at least one two-semester hours course concerning the learning and behavioral characteristics of handicapped students; (c) at least four semester hours in methods of teaching reading for applicants desiring certification to teach grades kindergarten through eight, grades nine through twelve language arts, and special education; (d) fulfilment of all special recommendations of the student’s mentoring team.
Applications for teacher certification should be completed early in the final semester before graduation. Application forms may be obtained in the Registrar's Office, 215 Student Services Building, and in the Education Advising Center, 214 Claxton Addition.

It is important to note that Tennessee regulations stipulate that applicants for initial teacher certification be recommended by an approved teacher training institution.

PROGRESSION TOWARD DEGREE COMPLETION IN NON-TEACHING FIELDS

HUMAN SERVICES

Progression and retention: Because the program in Human Services prepares students for entry into a service profession, the standards which must be met for progression and retention are professional in nature, as well as academic. Students who wish to pursue a major in Human Services must earn a grade of 'C' or higher in the introductory course before progressing to upper division work in the major. Students whose average for courses taken in the major falls below 2.5 will be called in for advising, and must regain this required minimum average by the end of the subsequent semester in order to be retained in the major. A Board of Review will meet once each semester to interview students who wish to progress into the major, and to review the work of students who are not meeting the academic and/or professional standards of the program. Students who wish to do so may ask to be interviewed while taking the introductory course, and if they meet the standards for progression will be allowed to progress to upper division work upon completion of that course with a 'C' or higher. Students who in the judgment of the members of the Board are not meeting the professional standards of the program will not be retained in the major. Applications for Fall/Spring practicum sequence must be submitted at the beginning of the preceding Spring semester, and students who do not meet the standards for professional conduct during the course of their field work will not be retained in the major. (Note that any decision affecting progression or retention may be appealed to the head of the Department of Special Services Education. Requests for information about the program, for appointments with the Board of Review, and for applications for the field practicum sequence should be directed to the program secretary in 127 Claxton Addition.

PHYSICAL EDUCATION MAJORS: NON-TEACHING CONCENTRATIONS

Progression toward degree completion in non-teaching Physical Education concentrations (e.g., Physical Fitness Specialist, Movement Sciences, Sports Management, and Sports Communications) requires successful attainment of the same criteria which are required of teaching majors, with the exception of completion of the socio-emotional assessment.

Students who are granted progression are thereby permitted to enroll in upper division professional courses.

OPTIONAL MINORS

Education students may earn single or multiple minors either from a unit within the College of Education or from units of other colleges. The minor must be one which is officially approved and described in the General Catalog. Unofficial minors will not be recognized.

Courses taken to satisfy the minor will not necessarily meet certification requirements. Students are encouraged to seek the counsel of their advisors on matters pertaining to minors.

The intention to complete a minor must be declared at the time of application for a degree if the minor is to appear on the final transcript. (Degree applications are available in the Registrar's Office.)

The following minors are available to teacher education students who are seeking baccalaureate degrees in the College of Education:

- Minor in Health Education
- Minor in Driver and Traffic Safety
- Minor in Coaching Physical Education
- Minor in General Special Education Special Education
- Minor in Dance
- Minor in Specialized Core

EDUCATION MINOR AND TEACHING CERTIFICATION FOR NON-EDUCATION STUDENTS

Teacher preparation, with the exception of programs in Business/Marketing and Industrial Education, is a five-year program (i.e., B.S. degree granted at the end of senior year). Undergraduate, non-Education students who are interested in earning teacher certification may earn a minor in Education and complete specific prerequisite courses before beginning the Professional Year (fifth year) of teacher preparation.

Interested students should inquire in the Advising Center, 214 Claxton Addition, for details regarding admission to the Teacher Education Program and fulfilment of possible additional General Education courses.

Minor in Education

Education Curriculum and Instruction

Curriculum and Instruction

Curriculum and Instruction

Elementary Education

Elementary Education

Elementary Education

Elementary Education

Elementary Education

Elementary Education

Elementary Education

Elementary Education

Elementary Education

Elementary Education

Elementary Education

Elementary Education

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Elementary Education

Elementary Education

Elementary Education

Elementary Education
ART AND MUSIC EDUCATION

Professors:

Associate Professors:

Assistant Professors:
J. R. Sparks, M. S. Tennessee.

CURRICULUM AND INSTRUCTION

COURSE SUBSTITUTIONS

It is sometimes necessary and advisable for students to substitute other courses for those required in a particular curriculum. This is particularly true of students who transfer to The University of Tennessee College of Education from another college or university. The general test is whether the course content is similar or, perhaps, more appropriate to that individual's needs.

To initiate a substitution request, the student should first meet with his/her advisor. If the advisor and student agree that the substitution is an appropriate one, the substitution request form should be forwarded to the Office of the Associate Dean for Undergraduate Studies, 202 Claxton Addition. Approved petitions are forwarded to the Dean of Admissions for final approval and for filing in the Records Office.

Professional education courses taken at junior or community colleges may be substituted for lower division (100/200 level) courses or may be used as electives. These courses may not be substituted for upper division (300/400 level) professional education courses.
### SPECIAL SERVICES EDUCATION

**Professors:**
- L. J. Coleman (Head), Ph. D. Kent State
- E. E. Doll (Emeritus), Ph. D. Pennsylvania
- T. W. George, Ed. D. Tennessee
- C. H. Hargis, Ed. D. Northern Colorado
- R. Kronick, Ph. D. Tennessee
- J. H. Miller, Ed. D. Auburn
- W. J. Schindler, Ph. D. Kent State
- W. E. Woodrick, Ed. S. Mississippi State

**Associate Professors:**
- S. M. Benner, Ed. D. Columbia
- J. L. Cassell, Ph. D. Kansas
- C. R. Colvin, Ed. D. Virginia
- M. C. Hannum, Ed. D. Northern Colorado
- K. H. Kopp, Ph. D. George Peabody
- P. McClam, Ph. D. South Carolina
- W. Mulkey, Ph. D. Florida State
- D. O. Welch, Ed. D. Tennessee
- M. Woodside, Ed. D. Virginia Polytechnic Institute

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

**Instructors:**
- D. H. Ashmore, M. S. Tennessee
- A. M. Griffin, M. S. Tennessee
- G. D. Tyler, M. S. Tennessee

**Lecturer:**
- H. K. Byrd, Jr., M. S. Tennessee

### TECHNOLOGICAL AND ADULT EDUCATION

**Professors:**
- G. D. Cheek (Head), Ph. D. Kansas State
- W. A. Cameron, Ph. D. Ohio State
- C. P. Campbell, Ed. D. Maryland
- C. B. Coakley, Ph. D. Wisconsin
- D. G. Craig, Ed. D. Cornell
- R. W. Haskell (Coordinator, Industrial Education)
- Ph. D. Purdue
- J. I. Mathews, Ph. D. Arizona State
- K. O. McCullough, Ph. D. Florida State
- J. M. Peters (Coordinator, Adult Education)
- Ed. D. North Carolina State
- J. L. Reed (Emeritus)
- M. S. Oklahoma State
- G. A. Wagner (Emeritus)
- M. S. Indiana
- G. W. Wiegars, Jr. (Emeritus)
- Ed. D.
- Missouri
- R. J. Woodin (Emeritus), Ph. D. Ohio State

**Associate Professors:**
- E. Brewer, Ed. D. Tennessee
- R. G. Brockett, Ph. D. Syracuse
- R. Hanson, Ph. D. Purdue
- C. E. Kasworm, Ed. D. Georgia
- B. J. Ledford, Ed. D. Tennessee
- E. C. Mann, Ed. D. Penn State
- G. C. Petty, Ph. D. Missouri
- B. J. Radcliff (Coordinator, Business and Marketing Education), M. S. West Virginia

**Assistant Professors:**
- R. Pierce, Ph. D. Ohio State
- T. L. Powell, M. S. Oklahoma State

**Instructor:**
- C. W. Wright, M. T. Arizona State

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### BUSINESS/MARKETING EDUCATION TEACHING CONCENTRATION

**Bakery, Cereal, and Allied Products:**
- Ed. D. Tennessee
- B. J. Mead, Ph. D. Purdue
- R. J. Croskey, M. F. A. (Greensboro)

**Computer Science:**
- Ed. D.
- Missouri
- R. J. Woodin (Emeritus), Ph. D. Ohio State

**Economics:**
- Ph. D. Michigan
- C. A. Wrisberg
- H. G. Welch, Ph. D.
- M. M. Phillips (Emeritus)
- H. B. Watson (Emeritus)
- G. G. Welch, Ph. D.
- C. A. Wrisberg
- H. G. Welch, Ph. D.

**Industrial Education:**
- Ph. D. Purdue
- J. I. Mathews, Ph. D. Arizona State
- K. O. McCullough, Ph. D. Florida State
- J. M. Peters (Coordinator, Adult Education)
- Ed. D. North Carolina State
- J. L. Reed (Emeritus)
- M. S. Oklahoma State
- G. A. Wagner (Emeritus)
- M. S. Indiana
- G. W. Wiegars, Jr. (Emeritus)
- Ed. D.
- Missouri
- R. J. Woodin (Emeritus), Ph. D. Ohio State

**Computer Science:**
- Ed. D.
- Missouri
- R. J. Woodin (Emeritus), Ph. D. Ohio State

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**EDUCATION TEACHING CONCENTRATION**

**Bakery, Cereal, and Allied Products:**
- Ed. D. Tennessee
- B. J. Mead, Ph. D. Purdue
- R. J. Croskey, M. F. A. (Greensboro)

**Computer Science:**
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- Missouri
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- C. A. Wrisberg
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- H. B. Watson (Emeritus)
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- C. A. Wrisberg
- H. G. Welch, Ph. D.

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- J. L. Reed (Emeritus)
- M. S. Oklahoma State
- G. A. Wagner (Emeritus)
- M. S. Indiana
- G. W. Wiegars, Jr. (Emeritus)
- Ed. D.
- Missouri
- R. J. Woodin (Emeritus), Ph. D. Ohio State

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### CURRICULA

#### ART EDUCATION

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td></td>
</tr>
<tr>
<td>English 101, 102</td>
<td>6</td>
</tr>
<tr>
<td>Art 101, 102</td>
<td>9</td>
</tr>
<tr>
<td>Humanities elective (English 233, 332, 333, or 443)</td>
<td>3</td>
</tr>
<tr>
<td>Studio Art electives</td>
<td>3</td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
</tr>
<tr>
<td>Natural Science electives</td>
<td>8</td>
</tr>
<tr>
<td>History electives</td>
<td>6</td>
</tr>
<tr>
<td>Studio Art electives</td>
<td>18</td>
</tr>
<tr>
<td>Art History 173</td>
<td>3</td>
</tr>
<tr>
<td>Educational and Counseling Psychology 210</td>
<td>3</td>
</tr>
<tr>
<td>Junior</td>
<td></td>
</tr>
<tr>
<td>Art Education 301, 302, 350</td>
<td>7</td>
</tr>
<tr>
<td>Studio Art electives</td>
<td>18</td>
</tr>
<tr>
<td><em>Social Science elective (Anthropology 313, 314, 315 or 461; Sociology 343; Political Science 322, 355, 365, 452, 454, 455, 459, 463, 499; Geography 372, 373, 375, or 379)</em></td>
<td>3</td>
</tr>
<tr>
<td>Art History electives</td>
<td>6</td>
</tr>
<tr>
<td>Senior</td>
<td></td>
</tr>
<tr>
<td>Mathematics 121, 122</td>
<td>6</td>
</tr>
<tr>
<td>Humanities elective</td>
<td>3</td>
</tr>
<tr>
<td>*Art History elective (385, 386, or 486)</td>
<td>3</td>
</tr>
<tr>
<td>Art Education 303, 304, 400, 410</td>
<td>10</td>
</tr>
<tr>
<td>Studio Art</td>
<td>11</td>
</tr>
<tr>
<td>Health 330</td>
<td>3</td>
</tr>
<tr>
<td>Professional Year</td>
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<tr>
<td>Art Education 481</td>
<td>6</td>
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<tr>
<td>Art Education 482</td>
<td>4</td>
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<tr>
<td>Educational Curriculum and Instruction 402</td>
<td>1</td>
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<tr>
<td>Educational and Counseling Psychology 210</td>
<td>3</td>
</tr>
<tr>
<td>Educational Curriculum and Instruction 302, 303, 304, 461</td>
<td>8</td>
</tr>
<tr>
<td>Educational and Counseling Psychology 315, 325, 346</td>
<td>5</td>
</tr>
<tr>
<td>Special Education 370</td>
<td>2</td>
</tr>
</tbody>
</table>

**Total: 164 hours**

**Business Electives:***
- Includes courses in Business Administration, Textiles and Apparel, Communications, etc. Consult advisor for specific requirement.

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### BUSINESS/MARKETING EDUCATION TRAINING CONCENTRATION

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td></td>
</tr>
<tr>
<td>English 101, 102</td>
<td>6</td>
</tr>
<tr>
<td>Mathematics 121, 122</td>
<td>6</td>
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<tr>
<td>Natural Science electives</td>
<td>8</td>
</tr>
<tr>
<td>Humanities elective</td>
<td>3</td>
</tr>
<tr>
<td>Health 330</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education electives</td>
<td>4</td>
</tr>
<tr>
<td>Computer Science 141</td>
<td>3</td>
</tr>
<tr>
<td>Speech 320</td>
<td>3</td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
</tr>
<tr>
<td>English Literature elective</td>
<td>3</td>
</tr>
<tr>
<td>History elective</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 201, 202 or Business elective</td>
<td>6</td>
</tr>
<tr>
<td>Economics 201, Economics elective</td>
<td>7</td>
</tr>
<tr>
<td>Humanities electives</td>
<td>9</td>
</tr>
<tr>
<td>Statistics elective</td>
<td>3</td>
</tr>
<tr>
<td>Technical elective*</td>
<td>3</td>
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<tr>
<td>Physical Education elective</td>
<td>1</td>
</tr>
<tr>
<td>Junior</td>
<td></td>
</tr>
<tr>
<td>Technological and Adult Education 336, 415, 420, 422, 430, 432</td>
<td>17</td>
</tr>
<tr>
<td>Marketing 301</td>
<td>3</td>
</tr>
<tr>
<td>Finance 301</td>
<td>3</td>
</tr>
<tr>
<td>Business elective</td>
<td>3</td>
</tr>
<tr>
<td>Computer Science 141</td>
<td>3</td>
</tr>
<tr>
<td>Educational Curriculum and Instruction 402</td>
<td>12</td>
</tr>
<tr>
<td>Business electives</td>
<td></td>
</tr>
</tbody>
</table>

**Total: 137 hours**

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Note: Students following this curriculum will earn the Bachelor of Fine Arts degree at the conclusion of the Senior year and Bachelor of Science Degree in Education with major in Art Education and teacher certification in Art at the end of the Professional year.

*Multi-cultural courses.
DANCE

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Content or Professional Specialty</th>
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<tbody>
<tr>
<td>6</td>
<td>English 101, 102</td>
</tr>
<tr>
<td>4</td>
<td>Dance Technique (Principal Area)</td>
</tr>
<tr>
<td>3</td>
<td>Dance Technique (Secondary Area)</td>
</tr>
<tr>
<td>4</td>
<td>French (Int.) or Humanities electives</td>
</tr>
<tr>
<td>3</td>
<td>Sociology 100</td>
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<td>3</td>
<td>Sociology elective</td>
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<tr>
<td>6</td>
<td>Mathematics 110, 115</td>
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<tr>
<td>6</td>
<td>History 151, 152</td>
</tr>
<tr>
<td>2</td>
<td>Dance 101</td>
</tr>
<tr>
<td>4</td>
<td>Sophomore</td>
</tr>
<tr>
<td>4</td>
<td>Dance Technique (Principal Area)</td>
</tr>
<tr>
<td>3</td>
<td>Dance Technique (Secondary Area)</td>
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<tr>
<td>3</td>
<td>Music electives</td>
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<td>2</td>
<td>Physical Education 332</td>
</tr>
<tr>
<td>6</td>
<td>History 151, 152</td>
</tr>
<tr>
<td>6</td>
<td>Health 465</td>
</tr>
</tbody>
</table>

Total: 128-129 hours

The specific dance technique (ballet, modern, jazz/musical/theatre) and skill level will be determined through advising and/or placement audition.

ELEMENTARY EDUCATION

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Content or Professional Specialty</th>
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</thead>
<tbody>
<tr>
<td>6</td>
<td>English 101, 102</td>
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<tr>
<td>6</td>
<td>Foreign Language (Intermediate); Foreign Language (Intermediate); or Humanities elective</td>
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<td>6</td>
<td>Mathematics 110, 115</td>
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<td>4</td>
<td>Physical Education Activities elective</td>
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<td>Physical Science elective or Ecology 370</td>
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<td>Music elective</td>
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<tr>
<td>3</td>
<td>History 251, 252</td>
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<tr>
<td>3</td>
<td>Natural Science elective</td>
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</table>

Total: 122 hours

HEALTH EDUCATION: COMMUNITY HEALTH CONCENTRATION

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Content or Professional Specialty</th>
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<tbody>
<tr>
<td>6</td>
<td>Educational Curriculum and Instruction 471</td>
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<tr>
<td>4</td>
<td>Educational Curriculum and Instruction 472</td>
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<td>6</td>
<td>Educational Curriculum and Instruction 325, 402</td>
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<tr>
<td>12-18</td>
<td>Content or Professional Specialty</td>
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Total: 150-158 hours

HEALTH EDUCATION: SCHOOL CONCENTRATION

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Content or Professional Specialty</th>
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<tr>
<td>6</td>
<td>English 101, 102</td>
</tr>
<tr>
<td>6</td>
<td>Mathematics 110, 115</td>
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<tr>
<td>8</td>
<td>Chemistry 100, 110</td>
</tr>
<tr>
<td>3</td>
<td>Nutrition elective</td>
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<td>3</td>
<td>Psychology 110</td>
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<tr>
<td>6</td>
<td>University Studies or Foreign Language (intermediate)</td>
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<td>8</td>
<td>Zoology 230, 240</td>
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<td>3</td>
<td>Anthropology 130</td>
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<td>3</td>
<td>Economics 251</td>
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<tr>
<td>6</td>
<td>History electives</td>
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<tr>
<td>6</td>
<td>Sociology or Psychology elective</td>
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<tr>
<td>6</td>
<td>University Studies or Foreign Language (intermediate)</td>
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Total: 122 hours

HUMAN SERVICES

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Total: 122 hours

*Consult advisor for specific course requirements.*
INDUSTRIAL EDUCATION:
INDUSTRIAL ARTS CONCENTRATION

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INDUSTRIAL EDUCATION:
INDUSTRIAL TRAINING CONCENTRATION

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MUSIC EDUCATION:
INSTRUMENTAL MUSIC CONCENTRATION

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MUSIC EDUCATION: VOCAL MUSIC (VOICE PRINCIPAL) CONCENTRATION

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### Physical Education:

#### Exercise Physiology / Fitness Concentration

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<td>Chemistry 100, 110</td>
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#### Physical Education: Movement Sciences

##### Concentration (Motor Behavior / Sport Psychology Option)

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<td>Social Science elective</td>
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<td>Mathematics 121</td>
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<td>Physical Education 290, 411, 412, 414</td>
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<td>Health 310</td>
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### Physical Education: Sport Communications Concentration

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<td>English 101, 102</td>
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<td>Computer Science 100 or 102</td>
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<td>Speech 210, 220, 240</td>
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<td>Communications 200</td>
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<td>Physical Education Activities electives</td>
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<td>Physical Education 321, 332, 372, 391</td>
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<td>Journalism 201, 203</td>
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<td>Physical Education 414</td>
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<td>Communications 410, 412, or 414</td>
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### Natural Science electives
- 8

### Physical Education
- 290, 291
- 6

### Accounting
- 201, 202
- 6

### Statistics
- 201
- 3

### Junior
- University Studies electives
- 6
- Recreation 310, 410
- 6
- Social Science elective
- 3
- Business electives (from required optional)
- 5
- 11
- Speech 210
- 3
- Advertising 250
- 3

### Senior
- Business electives (from required optional)
- 6
- Physical Education 426 or Recreation 490
- 1-12
- Recreation 440
- 6
- General electives
- 9
- Physical Education 442 or Recreation 430
- 2-3

**Total: 136 hours**

1 Choose at least 12 hours/4 courses from the following to complete the Business Minor: Business Law 301, 401, Finance 301, 470, Management 301, 321, 431, Marketing 301, 310, 420.

### PHYSICAL EDUCATION: TEACHING CONCENTRATION

#### Freshman
- English 101, 102
- 6
- Mathematics 110
- 3
- Chemistry 100, 110
- 8
- Speech 210
- 3
- Physical Education 100, 102, 104, 105, 271, 274
- 12
- Art or Music elective
- 3
- Philosophy or Religious Studies elective
- 3

**Sophomore**
- Humanities elective (choose one): Literature, Foreign Language (Intermediate), Art, Music, Philosophy, Religious Studies
- 3
- Zoology 230
- 3
- Economics or Sociology elective
- 3
- Physical Education 103, 272, 273, 290 or 468, 106, 202 or 232, 275, 291, 292
- 15-18
- Geology or Political Science elective
- 3
- Educational and Counseling Psychology 210
- 3
- Physical Education elective 239, 240, or 241
- 2

**Junior**
- University Studies electives
- 6
- History electives
- 6
- Technological and Adult Education 437
- 3
- Physical Education 321, 332, 333, 345, 372, 414
- 15
- Health 310
- 3
- Educational and Counseling Psychology 315
- 3

**Senior**
- Educational and Counseling Psychology 325
- 2
- Special Education 370
- 2
- Physical Education 356, 391, 409, 410, 411, 420,
- 422, 424, 443, 444
- 22
- Educational Curriculum and Instruction 302, 303,
- 304
- 5
- Zoology 480
- 3

**Professional Year**
- Physical Education 481
- 4
- Physical Education 482
- 4
- Educational Curriculum and Instruction 402, 461
- 17

**Total: 169-170 hours**

### RECREATION: PRIVATE/COMMERCIAL CONCENTRATION

#### Freshman
- English 101, 102
- 6
- History electives
- 6
- Mathematics 110
- 3
- Physical Education 110, 290
- 6
- Computer Science 100
- 3

**Sophomore**
- Recreation 250, 290, 320
- 7-8
- Sociology 100
- 3
- Mathematics 110
- 3
- Recreation 110, 290
- 6
- Computer Science 100
- 3

**Junior**
- Recreation 310, 390, 450
- 7-8
- Humanities electives
- 6

**Senior**
- Recreation 410, 430, 440, 450
- 12
- Recreation 490
- 12
- Business Administration or Management elective 3

**Total: 128-130 hours**

### RECREATION: THERAPEUTIC CONCENTRATION

#### Freshman
- English 101, 102
- 6
- History electives
- 6
- Mathematics 110
- 3
- Recreation 110, 210
- 5
- Computer Science 100
- 3

**Sophomore**
- Recreation 220, 250, 290, 320
- 8-9

### SPECIAL EDUCATION: GENERAL SPECIAL EDUCATION CONCENTRATION

#### Freshman
- English 101, 102
- 6
- Biology 110, 120
- 8
- Human Services 220, 320, or 330
- 3
- Art, Music, or Theatre elective
- 3
- Psychology 110
- 3

**Sophomore**
- Mathematics 110, 115, 121, or 122
- 6
- Chemistry 100, Physics 141, Geology 100, or Astronomy 151
- 3-4
- History 251, 252
- 6
- University Studies electives
- 6
- Educational and Counseling Psychology 210
- 3
- Non-Education elective
- 3
- English Literature elective
- 3
- Special Education 270
- 1
- Physical Education Activity elective
- 3

**Junior**
- Health 305
- 2
- Educational Curriculum and Instruction 302, 303,
- 304, 475
- 8
- Religious Studies, Philosophy, or Human Services elective
- 3
- Sociology or Economics elective
- 3
- Political Science, Sociology, Religious Studies,
- Women’s Studies, or University Studies elective
- 3
- Elective
- 3
- Educational and Counseling Psychology 315, 325
- 5
- Special Education 370
- 2
- Educational Curriculum and Instruction 428, 430,
- 434, 443
- 12
- Special Education 410, 451, 452, 454, 461, 480,
- 485
- 19

**Total: 152-153 hours**

### SPECIAL EDUCATION: SPEECH AND HEARING CONCENTRATION

#### Freshman
- English 101, 102
- 6
- Psychology 110
- 3
- Biology 110, 120
- 8
- History 251 or 252
- 3
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<td>Major elective (choose two): Special Education 440, Audiology and Speech Pathology 431, 465, 494</td>
<td>6</td>
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<td>Educational Curriculum and Instruction 402</td>
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<td>Total: 159-160 hours</td>
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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 apply these principles to the solution of practical and high technology problems, and who can view the solutions in their overall social perspective so that the actions that they recommend will have long term benefits. 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 into 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 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 in the number of qualified black engineering graduates. The University of Tennessee was one of the early pioneers in establishing the Minority Engineering Scholarship Program in 1973. The program's goal is to increase significantly the number of qualified black engineering graduates.

The Engineering Experiment Station was established in 1922.

The five-year Cooperative Engineering Program is offered in order to provide an augmented engineering education that includes significant experience in industry as well as superior academic preparation. Cooperative work assignments differ from part-time or summer employment in that they involve regularly scheduled cycles of full-time academic terms alternating with full-time work periods, normally resulting in fifteen to nineteen months planned, career-related assignments of progressive complexity and responsibility. In introducing the student in this manner to engineering employment, the College and the facilities of industry join together to offer a broader and richer preparation for postgraduate employment than can be provided by a conventional academic program. This experience in an industrial and professional environment contributes to the student's maturity, increases the scope of acquaintances and concepts, offers an opportunity to apply theory and skills in a real-world setting, and enables the student to define more clearly educational and career interests and objectives. Some of the experience is at a subprofessional level not available to an engineer after graduation, yet is of great significance in achieving a complete education and early effectiveness.

Participation in the Cooperative Engineering Program usually begins with application during the freshman year, and placement with a co-op employer during the sophomore year, after the student has met academic progress and grade qualifications required by employers and the Co-op Program. A single application period is held each academic year, and students interested in co-oping should apply at the first opportunity open to them in order to receive full benefit of counseling available before placement and to establish priority in placement activities. Each class of applicants takes priority over succeeding classes for all positions for which the earlier applicants are qualified. Students undecided about participating should nevertheless apply during their freshman year if possible, and then request that their applications be held until they withdraw or are ready to make a definite commitment.

In general, students begin work after the first or second sophomore semester, although an exceptionally well qualified can-
Candidacy might begin a field assignment at the end of the freshman year. A schedule of courses is taught by each engineering department specifically to meet the needs of co-op students, and applicants must be able to fit into that schedule in order to participate. Candidates must be able to project a minimum of fifteen months of co-op experience prior to the senior year, within the regular alternating sequence, to qualify for placement. With very few exceptions, transfer students must complete a minimum of two academic terms at UTK before beginning co-op assignments, the first establishing qualifications, and the second while placement is secured.

Students in the Cooperative Engineering Program are classified for salary purposes as freshmen, sophomores, or juniors according to their progress in meeting bachelor's degree requirements in their major department. Second degree students, those transferring from other colleges within UTK or from other universities, and those who choose to coordinate courses, are consistently lighter than the normal engineering schedule, are assigned "equivalent semesters completed" - a rating that indicates actual progress toward their UTK engineering degree. The number of terms in school or hours completed, are frequently not accurate indications of academic progress in engineering in such cases.

Students who wish to co-op must plan carefully in order to fit into the established schedules of courses offered for co-ops. Those planning to transfer to the College of Engineering from other disciplines or schools should begin working as early as possible with an advisor in the department they plan to enter in order to enter the co-op schedule at an optimum time. Brochures with further details, sample calendars showing school and work schedules, and current employer lists may be obtained from the Cooperative Engineering Program, University of Tennessee, Knoxville, TN 37996-2350. Because of heavy appointment and travel schedules of the office, prospective students are requested to discuss the program with a coordinator in advance of the annual information and orientation meeting should telephone the Co-op Office, 615/974-4323, in advance for an appointment.

**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 nine major subjects: aerospace engineering, chemical engineering, civil engineering, electrical and computer 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 that discipline in order to participate in this program. Information concerning graduate programs is given in the Graduate Catalog.

**GRADUATE PROGRAMS 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, chemical, electrical and computer, engineering science, industrial, mechanical engineering, engineering management, and mathematics and physics. All programs lead to the M.S. degree. Also, Ph.D. degrees are available in many of these fields. Information may be obtained from the Registrar, The University of Tennessee Space Institute, Tullahoma, TN 37388.

**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 programs at UTK include aerospace, agricultural, chemical, civil, electrical, engineering science and mechanics, industrial, mechanical, metallurgical, and nuclear. Co-op programs in the above areas are presently ABET accredited.

**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.
3. No unofficial minors will be recognized.
4. Minor exist in Architecture and Business Administration, and in numerous departments in Agriculture and Liberal Arts.
5. Presently no engineering student can minor in another engineering discipline, nor can a non-engineering student declare an engineering minor.
6. 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.

A student should notify his or her advisor and major department when beginning work on a minor. The intention to complete a minor must be declared at the time of application for a degree if the minor is to appear on the final transcript. Degree applications are handled by the UTK Records Office.

**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. In general, this decision is based on the student's previous performance at UTK.

**DROPOUT DEADLINE**

The drop and add deadline for all undergraduate courses administered by any department in the College of Engineering is the end of the tenth calendar day of each semester counted from the beginning day of classes. Any drop action after this date on the part of any student (regardless of major) is subject to late drop regulations. Late drop requests which may be approved for reasons other than academic difficulties, are handled by the Office of Academic Affairs, 118 Perkins Hall. For other procedures refer to "Changes in Registration" in the general section of this catalog.

**GENERAL REQUIREMENTS**

Students are advised to consult the University's degree requirements as stated in the front section of this catalog as well as departmental requirements.

**Inspection Trip.** Each candidate for graduation majoring in aerospace, mechanical, chemical, or metallurgical engineering must participate in inspection trips scheduled by the major department.

**Transfer Students.** All transfer students - Tennessee resident, out-of-state students and international students - are reviewed by a College Association Committee prior to an Association decision, regardless of transfer GPA. The determination is made by 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. Liveness of a students' interest in engineering, as evidence 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 Credit.** 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 limitations and restrictions 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 records.

**Drop and Add Deadlines.** Each 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 by the head of the department (or designée) into which the student proposed to transfer but only after receiving 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 meeting all of the course requirements of the selected engineering program. In no case will the minimum requirement be less than 30 semester credits. The prevailing University regulations shall apply.

**Satisfactory/No Credit Courses.** An undergraduate engineering student may count towards a degree up to 9 semester
hours obtained by Satisfactory/No Credit (S/NC) grading. Such hours must be used for humanities-socie sciences elective credit in engineering. Certain engineering courses carry only S/NC grading and 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. 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 - its culture, behavior patterns, history, and environment; 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 the selection of required electives in this area.

Students are urged to plan their Humanities/Social Science elective program in consultation with their advisor. Requirements:

1. Courses must be from this approved list
2. 18 hours minimum
3. 3 hours minimum in social sciences (12 hours maximum)
4. 6 hours minimum in humanities (12 hours maximum)
5. At least 6 hours must be in a single department
6. 6 hours minimum introductory courses (italicized)
7. Foreign languages (a) a foreign language will not be approved if it is the student's native language, (b) 6 hours minimum (if only 3 hours taken, that 3 hours may not be used as a H/SS elective, and (c) other foreign languages may be approved introductory courses are in italics below (6 hours maximum) HUMANITIES

- Afro-American Studies 201, 202, 232, 352
- American Studies 310
- Anthropology 110, 130, 410, 419
- Asian Studies 101, 102
- Foreign Languages: French 111, 112, 211, 212; German 101, 102, 201, 202; Greek 121, 122, 251, 262; Italian 111, 112, 211, 212; Portuguese 111, 112, 211, 212; Russian 101, 102, 201, 202; Spanish 111, 112, 211, 212
- Medical Studies 201, 261, 262
- Music General 110, 120
- Philosophy 110, 111, 120, 121, 322, 324, 326
- Religious Studies 101, 102, 212, 232, 235, 301, 302, 305, 309, 311, 312, 313, 315, 322, 326
- University Honors 237, 373, 437 SOCIAL SCIENCE ELECTIVES
- Economics 201, 321, 323, 324, 325
- Geography 141, 320, 330, 361, 421, 441, 444
- Political Science 301, 310, 311, 320, 321, 330, 331, 340, 350, 355, 361, 385, 386, 370, 374
- Psychology 110, 210, 220, 360
- Sociology 110, 200, 310, 311, 321, 340, 343, 344, 345, 363
- University Honors 247, 347, 447
- University Studies 310, 320, 410, 420

**American History Requirement.** Engineering students, regardless of natural origins, must fulfill the American History requirement described elsewhere in this catalog. Those students who have not had the required year of American history in high school may choose the required six semester hours from History 251 and 252, or other courses deemed suitable by the Department of History. These hours may 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 their selection are stated.

**The Voluntary ROTC Program.** Engineering students may participate in the ROTC Program. Advanced ROTC courses (300 and 400 series) may be counted as technical elective credit toward an engineering degree up to a total of six (6) semester hours. Normally, Military Science courses cannot be used as humanities/social science electives. Individual departments determine the appropriate substitutions.

**Approval of Electives and Substitutions.** Each student shall discuss with an advisor the status of the program of study no later than the beginning of the second semester prior to anticipated graduation. Any necessary additions to or substitutions in the program, or electives requiring special approval, must be cleared in writing at that time, and it is each student's responsibility to see that all necessary approvals are secured. Inattention to such matters will most likely delay graduation.

**AGRICULTURAL ENGINEERING**

(See College of Agriculture)
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 50 semester hours of Lower-Division engineering curriculum course work with an overall GPA of at least 2.4. This must include Chemical Engineering 200.

PROVISIONAL STATUS: Students who have completed 50 semester hours of Lower-Division engineering curriculum course work with an overall GPA between 2.0 and 2.4 may apply for provisional status. The granting of Provisional Upper-Division Status is based on the availability of space in the departmental programs after 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 9 hours of 200 and 300 level required courses specified by the department. Further progression 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 upper-division Chemical 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.

GRADUATE STUDY PROGRAM

Graduate programs leading to the degrees of Master of Science and Doctor of Philosophy in Chemical Engineering are offered. The University's Graduate School operates a Resident Graduate Program at Oak Ridge and Kingsport. See the Graduate Catalog for detailed information.

CIVIL ENGINEERING

Including Environmental Engineering

Professors:

G. D. Reed (Head), Ph. D. Arkansas, P. E.; E. G. Burdette (Fred N. Peebles Professor), Ph. D. Illinois, P. E.; A. Chatterjee, Ph. D. North Carolina State, P. E.; W. T. Davis (Associate Dean - Graduate School), Ph. D. Tennessee; D. W. Goodpasture (Tennessee Professor), Ph. D. Illinois, P. E.; W. L. Grecco (Associate Dean - Engineering), Ph. D. Michigan State, P. E.; K. W. Heathington (Associate Vice President - Research), Ph. D. Northwestern, P. E.; J. B. Humphreys, Ph. D. Texas A&M, P. E.; H. L. Johnson, M. S. Tennessee, P. E.; W. A. Miller (Director - SAMS), Ph. D. Georgia Institute of Technology, P. E.; B. A. Tschanz (Condra Professor), ScD New Mexico State, P. E.; C. R. Walker (Emeritus) M. S. Massachusetts Institute of Technology, P. E.; D. W. Weeter, Ph. D. Purdue, P. E.; J. Wegmann (IBM Professor), Ph. D. Northwestern.

Associate Professors:

B. J. Frederick, B. C. E. Clarkson University, P. E.; J. H. Hansen (Space Institute, Tullahoma), Ph. D. Missouri; G. D. Kressin, J. D. Tennessee; A. B. Moore, M. S. Tennessee; R. B. Robinson (Fisher Professor), Ph. D. Iowa State, P. E.; R. F. Tiry (Emeritus), B. S. Marquette, P. E.

Assistant Professors:

R. M. Bennett, Ph. D. Illinois, P. E.; E. C. Drumm, Ph. D. Arizona, P. E.; W. F. Kane, Ph. D. Virginia Polytechnic Institute and State University.

BACHELOR OF SCIENCE PROGRAM

The curriculum in civil engineering is designed to provide training in fundamental engineering sciences and in certain 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 a student can emphasize areas of study in construction, environmental engineering, geotechnical/materials, structures, transportation, or water resources.

Students are required to maintain a cumulative grade point average of at least 2.0 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 at the departmental office. Students must consult this list prior to registering for elective courses.

MASTER OF SCIENCE PROGRAM

Graduate programs in civil engineering and environmental engineering leading to the degree of Master of Science 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.

ELECTRICAL AND COMPUTER ENGINEERING

Professors:

J. M. Googe (Acting Head), Ph. D. Georgia Institute of Technology, P. E.; T. A. Aleksoff, Ph. D. Wisconsin, P. E.; J. M. Bailey, Ph. D., Georgia Institute of Technology; J. D. Birdwell, (John Fisher Young Professorship), Ph. D. Massachusetts Institute of Technology; A. O. Bishop, Ph. D. Clemson; T. V. Blacock (Haliburton Professor), Ph. D. Tennessee; R. E. Bothnermeier (IBM Professorship), Ph. D. Northwestern; B. K. Bose (Condra Chair of Excellence), Ph. D. Calcutta; D. W. Boulind (IBM Professorship), Ph. D. Vanderbilt, P. E.; R. C. Gonzales (IBM Professorship, Distinguished Professor), Ph. D. Florida; J. M. Googe, Ph. D. Georgia Institute of Technology, Ph. D.; G. W. Hoffman, Ph. D. Harvard; J. C. Hung (Distinguished Professor), Ph. D. New York, P. E.; E. J. Kennedy (Winston Fulton Professorship), Ph. D. Tennessee, P. E.; J. S. Lawler (Tenneco, Inc. Professor), Ph. D. Michigan State, W. O. Leftell (Emeritus), M. S. Tennessee; H. P. Neff, Ph. D. Auburn, P. E.; M. O. Pace, Ph. D. Georgia Institute of Technology, Ph. D.; J. F. Pierce (Distinguished Professor), Ph. D. Pittsburgh, P. E.; R. W. Rochelle; Ph. D. Maryland; J. R. Roth, Ph. D. Cornell; B. Smith, Jr. (Emeritus), M. S. Illinois, P. E.; F. W. Symonds, Ph. D. Nottingham (UK); J. D. Tillman (Emeritus), Ph. D. Auburn; C. H. Weaver (Emeritus), Ph. D. Wisconsin, P. E.

Associate Professors:

R. D. Joseph (Space Institute, Tullahoma), Ph. D. Case Institute of Technology; A. Pujol (Space Institute, Tullahoma), Ph. D. Vanderbilt; M. J. Roberts, Ph. D. Tennessee; D. Rosenberg, Ph. D. New York; J. M. Rochelle, Ph. D. Tennessee; M. M. Trivedi, Ph. D. Utah State; J. W. Waller, Ph. D. Tennessee.

Assistant Professors:

B. W. Bomar (Space Institute, Tullahoma), Ph. D. Tennessee; M. Abidi, Ph. D. Tennessee; D. Brzakovic, Ph. D. Florida.

Lecturers:


Courses required in the Electrical and Computer Engineering undergraduate curriculum cannot be used in either the M. S. or the Ph. D. programs.

BACHELOR OF SCIENCE PROGRAM

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 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 elect to take courses focused in any of the areas of electrical 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 are continued through the M. S. and Ph. D. programs. The senior curriculum
is sufficiently flexible to allow a student to take several courses outside the chosen area of focus. A student must take at least one senior elective that is a designated design course.

Generally, all sophomore and junior course work is offered each semester. Senior work is scheduled so that the student may enter at the beginning of the Fall Semester. This arrangement allows maximum flexibility, since the student may elect the normal four-year schedule, may choose an accelerated schedule, or may participate in the Cooperative Engineering Program. In addition to the usual research and teaching facilities in machinery, electronics, micro-waves, solid state devices, and control equipment, the department has microcomputer, minicomputer and personal computer facilities.

PROGRESSION TO UPPER-DIVISION STATUS
Progression of electrical engineering majors to the upper-division programs of the department is based on the completion of all freshman courses prior to entering the sophomore level. Students applying for ECE 201 must have completed all courses listed in the freshman year of the ECE curriculum. Students must complete ECE 201, 202, Mathematics 200, 231, 241 and Physics 231, 232 before enrolling in junior level (300) courses in ECE. Prerequisites and corequisites as stated in the catalog are strictly enforced.

Students are evaluated during the second semester of the freshman year for enrollment in ECE 201, during the first semester of the sophomore year for ECE 202, and during the second semester of the sophomore year for enrollment in the junior level courses. Students must pre-register in the Department the previous semester to be evaluated for 201.

Passing grades in ECE 201, 202 and all of their corequisites and prerequisites are required for enrollment in all upper division electrical engineering courses.

Those not qualified to enter the junior level courses of the department will not be permitted to register for any upper division courses within the department. Students failing to satisfy the departmental requirements for course enrollment will be counseled and advised of educational alternatives. In the junior year, students may select any 4 of 6 electives during the second semester. These elective courses include electronics, energy, communications, computers, systems and plasma. Students must maintain an overall GPA of 2.00 on all ECE courses before obtaining a Bachelor of Science Degree.

GRADUATE

COMPREHENSIVE COURSE AND RESEARCH PROGRAMS FOR THE DEGREES OF MASTER OF SCIENCE, MASTER OF ENGINEERING, AND DOCTOR OF PHILOSOPHY IN ELECTRICAL ENGINEERING

The program prepares students for a career in engineering development, research or additional graduate study leading 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 contains a sufficient number of electives to provide for those special interests of students that cannot be accommodated in other programs. Examples of special interest elective groups available are engineering mechanics, biomedical engineering, environmental sciences, engineering materials, and non-destructive evaluation. Other elective groups are currently being developed and will be available in the future.

The engineering mechanics elective group focuses on analytical, computational and experimental methods used in investigating practical engineering problems. 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 background for students wishing to pursue engineering graduate studies.

The biomedical engineering elective group provides the basic background for an engineer to contribute to the fields of biology and medicine in 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 Science in Memphis.

The environmental sciences elective group provides the opportunity for the student to apply engineering principles to the solution of environmental 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 for various engineering applications including the selection of the proper materials to support the anticipated loads during the design life of the industrial need for individuals with a combined background in both structural analysis and materials properties.

The non-destructive evaluation elective group provides background in the application of techniques for evaluation material properties and determining material flaws. Demand for this background is increasing in high technology industries. Techniques studied include ultrasonics, X-rays, dye penetration, photothermal.

The basic engineering sciences curriculum provides an opportunity to study those 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 and momentum transfer; and (5) information science; (6) transfer and reactive systems such as heat, mass, and momentum transfer; and (7) environmental sciences. No student will study all the engineering sciences but must structure a course plan to provide depth in some of the engineering areas.

Because of the large number of elective courses to be selected within 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 objective and a course plan for the upper-division years.

For students with more than 70 semester 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.

MASTER OF SCIENCE AND DOCTORAL PROGRAMS

Graduate programs leading to the degrees of Master of Science and Doctor of Philosophy in a major in engineering science are available to graduates of recognized curricula in engineering, mathematics, or one of the physical or biological sciences. Program options include solid mechanics, fluid mechanics, biomedical engineering, and other engineering sciences. In the biomedical and engineering science option, interdisciplinary programs are arranged to meet individual needs and 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 employed in research, development, or design activities and whose interests in continuing education (either full-time or part-time) lie at one of the interfaces between science and engineering, or can best be met by interdisciplinary study in engineering. The department's course offerings and research activities are also intended to meet the needs of students who seek preparation for employment in 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.

INDUSTRIAL ENGINEERING

Professors:
J. N. Snider (Head), Ph. D. Ohio State, P. E.;
W. W. Claycombe, Ph. D. Virginia Polytechnic Institute, P. E.;
E. L. DePenter (IBM Professor), Ph. D. University of Illinois Technological Institute; D. C. Doulet, M. S. Tennessee, P. E.;
H. P. Emerson (Emeritus), S. B. Massachusetts Institute of Technology, P. E.;
G. Garrison (Part-time, Space Institute, Tullahoma), Ph. D. North Carolina State;
R. M. LaForge (Emeritus), M. S. Georgia Institute of Technology, P. E.;
H. L. Loveless, M. S. North Carolina State, P. E.;
W. G. Sullivan, Ph. D. Georgia Institute of Technology, P. E.;
J. D. Westbrook, Ph. D. Virginia Polytechnic Institute, P. E.

Associate Professors:
D. H. Hutchinson, Ph. D. Georgia Institute of Technology, K. E. Kirby, Ph. D. Tennessee.

Assistant Professors:
C. H. Aiken III, Ph. D. Tennessee, P. E.;
M. K. Goodman, M. S. Tennessee, P. E.;
J. C. Hungerford, Ph. D. Ohio State.

Instructor:
D. F. Jackson, M. S. Tennessee.

Lecturers:
J. A. Bontadelli (Part-time), Ph. D. Ohio State;
S. Douglass (Part-time), Ph. D. Tennessee,
J. C. Mitchell (Part-time, Space Institute, Tullahoma), Ph. D. Vanderbilt.

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 whereby when 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 management, aerospace 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 30 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, systems, reliability and quality control and traditional industrial engineering. Either one or two minors can be elected in Engineering, Mathematics, Psychology, Business, Computer Science, Statistics or Economics.

MASTER OF ENGINEERING PROGRAM

This professional degree program is intended as a curriculum in a five-year baccalaureate-master program which emphasized 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 30-semester hour program requires 12 hours of course work in an industrial engineering core, 6 hours of technical methods electives, 8 hours of Industrial engineering design electives and 6-hour thesis or design project.

MATERIALS SCIENCE AND ENGINEERING

Professors:
J. E. Spruill (Head), Ph. D. Tennessee;
K. H. G. Ashbee, Ph. D. Birmingham (England);
D. C. Bogue, Ph. D. Delaware;
B. S. Bovis (Part-time), Ph. D. Massachusetts Institute of Technology, C. R. Brooks, Ph. D.
Tennessee; R. A. Buchanan, Ph. D. Vanderbilt; E. S. Clark, Ph. D. California (Berkeley); D. A. Canonico (Adjunct Status), Ph. D. Lehigh; J. F. Fellers, Ph. D. Akron; J. S. Lin (Adjunct Status), Ph. D. Kansas; D. H. Lounds (Research Professor, Part-time), Ph. D. Colorado; C. D. Lundin, Ph. D. Rensselaer Polytechnic Institute; C. J. McHargue (Part-time), Ph. D. Kentucky; B. F. Oliver, Ph. D. Pennsylvania State; P. J. Phillips, Ph. D. Liverpool (England); E. E. Stansbury (Emeritus), Ph. D. Cincinnati.

Associate Professors:
Assistant Professor:
Roberto S. Benson, Ph. D. Florida State University.

BACHELOR OF SCIENCE PROGRAM

Materials Science and Engineering is concerned with the science and technology needed to develop and apply materials for the benefit of society. The undergraduate program is designed to provide education and training in the fundamental and engineering sciences with special attention given to the production, development and utilization of materials. Emphasis is placed on developing the expertise needed to participate in selection, development and production of materials for major engineering systems. The program strives to develop in its students the ability to specify materials requirements, select from existing materials, conceive and characterize new materials and applications, develop the data base required for use of materials (including an understanding of failure modes and phenomena), and develop processes for improvement of materials and/or materials systems. It is anticipated that some of the program's graduates will continue their education in graduate school; hence it is important that the program prepare those students for advanced study.

The field of materials science and engineering is quite broad, encompassing metallic, ceramic, and polymeric materials as well as composites made from combinations of materials. Consequently, the curriculum contains a central core of courses that are applicable to all materials types with flexibility in the upper division years to permit concentration in the in-depth coverage of specific materials categories. Students have the opportunity to select from three concentrations: metallurgical engineering, polymer engineering or materials engineering. By judicious choice of electives the student may get a broad education or may develop a specialty area such as materials processing, mechanical behavior of materials, failure analysis, materials for electronic devices, or materials characterization. A minimum of 18 semester-hours of humanities-social science courses must be taken from the approved list of courses. Graduation in materials science and engineering requires a minimum grade point average of 2.00 for all departmental courses.

PROGRESSION TO UPPER-DIVISION PROGRAMS

Progression of students to departmental Upper-Division courses is competitive. 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 formally applies for Upper-Division Status after completing 50 semester hours of Lower-Division engineering curriculum course work with an overall GPA of at least 2.4. This must include Materials Science and Engineering 201.

PROVISIONAL STATUS: Students who have completed 50 semester hours of Lower-Division engineering curriculum course work with an overall GPA between 2.0 and 2.4 may apply for provisional status. The granting of Provisional Upper-Division Status is based on the availability of space in the departmental programs after Upper-Division Status students have been accommodated. Provisional students are required to demonstrate their ability to perform satisfactorily in upper-division courses by attaining a minimum GPA of 2.9 in at least 8 hours of 300-level required courses specified by the department. Further progression to upper-division courses is dependent upon this minimum level of performance.

TRANSFER STUDENTS: At the Upper-Division level students are admitted on a Provisional Status basis only. Any student presenting more than 28 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 a major in metallurgical engineering or polymer engineering are offered.

Detailed information about graduate programs in materials science and engineering and the requirements for either M. S. or Ph. D. degrees are given in the Graduate Catalog.

MECHANICAL AND AEROSPACE ENGINEERING

Professors:
D. R. Pitts (Head), Ph. D. Georgia Institute of Technology; R. V. Arimilli, Ph. D. Virginia Polytechnic Institute and State University; J. F. Bailey (Emeritus), Ph. D. Lehigh, P. E.; G. W. Braun (Emeritus, Space Institute, Tullahoma), Ph. D. Gottingen; F. G. Collins (Space Institute, Tullahoma), Ph. D. California (Berkeley); P. E.; A. J. Edmondson, (Associate Head), Ph. D. Texas A&M; J. A. Eular, Ph. D. Purdue, P. E.; W. Frost (Space Institute, Tullahoma), Ph. D. Washington; G. W. Garrison (Space Institute, Tullahoma), Ph. D. North Carolina State; K. E. Harwell (Space Institute, Tullahoma), Ph. D. California Institute of Technology, P. E.; W. H. Heiser (Space Institute, Tullahoma), Ph. D. Massachusetts Institute of Technology; J. W. Hodgson, Ph. D. Georgia Institute of Technology, P. E.; R. W. Holland, M. S. Tennessee, P. E.; W. S. Johnson, Ph. D. Clemson, Ph. D. Oklahoma State, P. E.; R. J. Krane, Ph. D. Oklahoma; H. Liston, Jr. (Vice Provost), M. E. A. George Washington; C. F. Lo (Space Institute, Tullahoma, Research Professor), Ph. D. Cornell; R. L. Maxwell (Emeritus), M. S. Case Western Reserve, P. E.; M. W. Milligan, Ph. D. Tennessee, P. E.; M. K. Newman (Emeritus, Space Institute, Tullahoma), Ph. D. Columbia, P. E.; M. Parang, Ph. D. Oklahoma, P. E.; J. R. Parsons, Jr., Ph. D. North Carolina State, P. E.; C. Peters (Space Institute, Tullahoma), D. Applied Science Brussels; F. Shahrokhli (Space Institute, Tullahoma), Ph. D. Oklahoma; G. V. Smith, Ph. D. Pennsylvania State, P. E.; F. H. Speckhart (IBM Professor), Ph. D. Georgia Institute of Technology, P. E.; W. K. Stair (Emeritus), M. S. Tennessee; J. M. Tucker (Emeritus), M. S. Illinois; H. J. Wilkerson, Ph. D. Tennessee, P. E.; C. C. Wilson, Ph. D. Purdue; J. M. Wu (Space Institute, Tullahoma), Ph. D. California Institute of Technology, R. L. Young (Space Institute, Tullahoma), Ph. D. Tennessee, P. E.

Associate Professors:
S. E. Becker, Ph. D. North Carolina State, P. E.; R. A. Crawford (Space Institute, Tullahoma), Ph. D. Tennessee; T. H. Mouden (Space Institute, Tullahoma), Ph. D. Tennessee; R. J. Schulz (Space Institute, Tullahoma), Ph. D. Tennessee, P. E.; A. D. Vakili (Space Institute, Tullahoma), Ph. D. Tennessee.

Assistant Professors:
R. V. Dubey, Ph. D. Clemson, S. M. Jeng (Space Institute, Tullahoma), Ph. D. Penn State; R. Keyhani, Ph. D. Ohio State; K. E. Nguyen, Ph. D. Colorado.

BACHELOR OF SCIENCE PROGRAM

Separate curricula are offered in aerospace engineering and mechanical engineering; however, the first two years of these curricula are identical. During the first two years, the curricula provide for training and study in the basic sciences of physics, mathematics, chemistry, and engineering common to these fields. The third year of both programs continues with the development of the particular engineering sciences of the aerospace and mechanical engineering fields. In the senior year an opportunity is provided for the student to apply this fundamental knowledge to mechanical and aerospace engineering problems. Both curricula are arranged in the upper-division years to prepare the student for graduate study or technical employment.

Aerospace engineering has scientific foundations close to those of mechanical engineering. The aerospace engineer, however, devotes attention particularly to the research, development, design, testing, and production of aerospace vehicles - aircraft.
spacecraft, missiles; auxiliary systems - heating, cooling, guidance, control; and propulsion systems - piston engines, turbo-jets, ramjets, rockets. Emphasis in the senior year is directed toward these topics and the program culminates in a major aerospace design project.

Mechanical engineering, the most versatile engineering discipline, has its foundation in the basic sciences and requires an understanding of such areas of applied science as solid and fluid mechanics, thermodynamics, heat transfer, structures, vibrations, mechanical design, manufacturing processes, and instrumentation in order to resolve the complex engineering problems of the real world. A major design project in the senior year builds upon this background in a capstone experience.

PROGRESSION TO UPPER-DIVISION PROGRAMS

Progress to Upper Division Programs is competitive and is based on departmental capacity. Factors considered include overall grade point average, performance in selected lower division courses, and evidence of satisfactory and orderly progress through the prescribed curriculum. A minimum cumulative grade point average of 2.0 for all departmental courses taken at UTK is required for graduation.

FULL STATUS: A Lower Division student in the department may apply for progression to upper Division Programs after completing 32 semester hours of Lower Division engineering curriculum on credit with and overall GPA of at least 2.4.

PROVISIONAL STATUS: Students who have completed 32 semester hours of Lower Division engineering curriculum course work with an overall GPA between 2.0 and 2.4 may apply for provisional status. The granting of Provisional Status is based on the availability of space in departmental programs 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 11 semester hours of 300 level required engineering courses (included 8 specified hours in the department). Further progression 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. Students who have not been progressed to an Upper Division Program will be dropped from departmental class rolls.

TRANSFER STUDENTS: At the Upper Division level students are admitted on a Provisional Status basis only. Any student presenting more than 28 semester 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 level 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 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 the curricula who satisfy the necessary prerequisite courses. The general requirements for advanced degrees are summarized in the Graduate Catalog.

NUCLEAR ENGINEERING

Professors:
T. W. Kerlin (Head), Ph. D. Tennessee, P. E.;
H. L. Dodds, Ph. D. Tennessee, P. E.;
J. B. Fussell (Part-time), Ph. D. Georgia Institute of Technology; J. T. Mihalczio (Part-time), Ph. D. Tennessee; P. F. Pasqua (Emeritus), Ph. D. Northwestern, P. E.; R. B. Perez, Ph. D. Madrid (Spain);
H. C. Roland, Ph. D. Tennessee;
P. N. Stevens, Ph. D. Northwestern, P. E.;
J. E. Turner (Part-time), Ph. D., (Vanderbilt),
P. E.; N. Uckan (Part-time), Ph. D. Michigan,
R. E. Uhrig (Distinguished Professor), Ph. D. Iowa State, P. E.

ASSOCIATE PROFESSORS:
E. M. Katz, Ph. D. Tennessee, P. E.;
L. F. Miller, Ph. D. Texas A&M, P. E.;
T. H. Scott, Ph. D. Florida, P. E.;
B. R. Upadhyaya, Ph. D. California, P. E.

BACHELOR OF SCIENCE PROGRAM

The curriculum is designed to provide a thorough educational experience for students interested in careers in nuclear engineering. The first two years are concerned with the fundamental courses needed as preparation for upper division courses. In the last two years students take scientific and engineering courses which equip them for entry into industry, research, or graduate studies.

MASTER OF SCIENCE PROGRAM

A graduate program leading to a degree of Master of Science is available to graduates of recognized undergraduate curriculum in engineering and physics. Each applicant will be advised as to the necessary prerequisite courses before entering the program. The general requirements of the masters' degree are summarized in the Graduate Catalog.

DOCTORAL PROGRAM

A program leading to the Ph. D. degree is available in nuclear engineering. For details, see the Graduate Catalog.

CURRICULA

Course requirements for the various engineering curricula are listed on the following pages. The numbers in the columns indicate the number of semester hours of credit for each course. Individual course prerequisites should be strictly adhered to, even if courses are not taken in the semester indicated. Although the requirements for each degree can be completed in four academic years (five for the cooperative program), the quality of the learning experience is much more important than the speed with which the curriculum is completed.

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 take certain that any necessary background work has been completed. In addition to specific prerequisites listed, it is assumed that a student taking sophomore 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 semester when the lack of prerequisites is discovered.

FRESHMAN YEAR

The freshman year is common to all engineering programs, except for engineering physics. (See curriculum display which follows.)

CURRICULA

Table: Credits

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
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<td>English 101, 102</td>
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<td>Chemistry 120, 130</td>
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<td>Mathematics 141, 142</td>
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<td>Basic Engineering 111, 101</td>
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<td>Basic Engineering 121, 131</td>
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<tr>
<td>Basic Engineering 100</td>
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<td>Total: 35 hours</td>
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AEROSPACE ENGINEERING

Table: Credits

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<th>Course</th>
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<tr>
<td>Mathematics 200</td>
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<tr>
<td>Physics 231, 232</td>
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</tr>
<tr>
<td>Engineering Science and Mechanics 231, 321</td>
<td>6</td>
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<tr>
<td>Basic Engineering 201</td>
<td>2</td>
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<tr>
<td>Material Science and Engineering 301, 311</td>
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<tr>
<td>Mechanical Engineering 331</td>
<td>3</td>
</tr>
<tr>
<td>Humanities/Social Science Elective*</td>
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<tr>
<td>Aerospace Engineering 362, 363</td>
<td>6</td>
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<tr>
<td>Mechanical Engineering 332, 341, 391</td>
<td>8</td>
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<tr>
<td>Aerospace Engineering 345, 351, 370</td>
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<tr>
<td>Electrical and Computer Engineering 301, 302</td>
<td>6</td>
</tr>
<tr>
<td>Humanities/Social Sciences Electives*</td>
<td>6</td>
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<tr>
<td>Aerospace Engineering 431, 449</td>
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<tr>
<td>Technical Elective</td>
<td>3</td>
</tr>
<tr>
<td>Humanities/Social Sciences Elective*</td>
<td>6</td>
</tr>
<tr>
<td>Total: 136 hours</td>
<td></td>
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</tbody>
</table>

*Humanities/social science electives: minimum of
18 hours required. (See College of Engineering General Requirements.)

### CHEMICAL ENGINEERING

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Chemical Engineering 200, 240</td>
<td>7</td>
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<tr>
<td>Chemistry 310-319, 371</td>
<td>7</td>
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<tr>
<td>Mathematics 200, 231, 241</td>
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</tr>
<tr>
<td>Physics 231</td>
<td>3</td>
</tr>
<tr>
<td>Humanities/Social Science</td>
<td>5</td>
</tr>
<tr>
<td>Electrical Engineering 301</td>
<td>3</td>
</tr>
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</table>

**Junior**

| Chemical Engineering 330, 340, 310, 360, 380 | 14 |
| Chemistry 350, 381 | 6 |
| Material Science and Engineering 201 | 3 |
| Chemistry Option | 3 |
| Humanities/Social Science | 6 |

**Senior**

| Chemical Engineering 450, 440, 480, 410, 490 | 16 |
| Technical Electives | 9 |
| Humanities/Social Science | 6 |

Total: 132 hours

### CIVIL ENGINEERING

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Mathematics 241, 231, 201</td>
<td>8</td>
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<tr>
<td>Physics 231</td>
<td>3</td>
</tr>
<tr>
<td>English 409</td>
<td>3</td>
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<tr>
<td>Geology 210</td>
<td>3</td>
</tr>
<tr>
<td>Engineering Science and Mechanics 231</td>
<td>3</td>
</tr>
<tr>
<td>Civil Engineering 210*251, 251</td>
<td>9</td>
</tr>
<tr>
<td>Mechanical Engineering 331</td>
<td>3</td>
</tr>
<tr>
<td>Humanities/Social Science</td>
<td>3</td>
</tr>
</tbody>
</table>

**Junior**

| Electrical and Computer Engineering 301 | 3 |
| Civil Engineering 330, 361, 352, 390 | 12 |
| Civil Engineering 321, 335, 380, 340, 395 | 15 |
| Humanities/Social Science | 3 |

**Senior**

| Civil Engineering 440, 471, 480, 400, 405 | 14 |
| Engineering Electives | 6 |
| Civil Engineering Electives | 3 |
| Humanities/Social Science | 12 |

Total: 137 hours

1See College list of approved courses.

### ELECTRICAL AND COMPUTER ENGINEERING

<table>
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<tr>
<th>Sophomore</th>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Mathematics 241, 231, 201</td>
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<tr>
<td>Physics 251, 232</td>
<td>7</td>
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<tr>
<td>Electrical and Computer Engineering 201, 202, 209</td>
<td>251, 259</td>
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<tr>
<td>Material Science and Engineering 201</td>
<td>3</td>
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<tr>
<td>Basic Engineering 201</td>
<td>3</td>
</tr>
<tr>
<td>Humanities/Social Science Electives</td>
<td>6</td>
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</table>

**Junior**

| Electrical and Computer Engineering 311, 321, 341 | 15 |
| Electrical and Computer Engineering 321(319) | 6(2) |
| Electrical and Computer Engineering 331(339) | 9(3) |
| Electrical and Computer Engineering 341(349), 361(369) | 3(1) |
| Humanities/Social Science Electives | 8 |

**Senior**

| Electrical and Computer Engineering Senior Electives | 18 |
| Humanities/Social Science Electives | 3 |
| Mechanical Engineering 331 | 3 |
| Electrical and Computer Engineering Senior Electives | 3 |

Total: 135 hours

1Must take 3 of these 5 courses which are 3 hour lectures and 1 hour lab each.

### ENGINEERING PHYSICS

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Physics 137 (131), 138 (132)</td>
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<tr>
<td>Mathematics 141, 142</td>
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<tr>
<td>Chemistry 120, 130</td>
<td>10</td>
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<tr>
<td>English 101, 102</td>
<td>8</td>
</tr>
<tr>
<td>Basic Engineering 100, 111</td>
<td>4</td>
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</tbody>
</table>

**Sophomore**

| Physics 237 (231), 238 (232) | 7-8 |
| Mathematics 241, 231 | 7 |
| Engineering/Techn. Elective | 6 |
| Humanities/Social Science Elective | 12 |
| English 101, 102 | 8 |
| Basic Engineering 100, 111 | 4 |
| Humanities/Social Science Elective | 12 |
| Physics 311, 321, 312, 421 | 13 |
| Physics Lab Elective | 6 |
| Engineering/Techn. Elective | 6 |
| Humanities/Social Science Elective | 6 |
| Physics 431, 432, 412 | 9 |
| Physics 411 | 3 |
| Engineering/Techn. Elective | 6 |
| Electives | 9 |

Total: 128 hours

1Honors courses (137-38, 237-38) are recommended to qualified students. Transfer students from other engineering departments may substitute Basic Engineering 121-131 for Physics 137, but must show some course credit in advanced thermodynamics or take Physics 138 (132).
2A total of 12 hours of engineering electives plus 9 hours of technical electives are required.
3Engineering electives should form a coherent group of courses taken in the College of Engineering.
4Technical electives may be taken in physics, basic engineering, math, other physical sciences, or astronomy.
5Non-technical electives are to be taken in the College of Liberal Arts from departments not included in the technical electives, with at least 10 hours taken in the humanities.
6From Physics 361-362 or Physics 461-462-463.
7Students not planning to pursue graduate studies may substitute Physics 340 and either 341 or 342.

### ENGINEERING SCIENCE AND MECHANICS

<table>
<thead>
<tr>
<th>Sophomore</th>
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<tbody>
<tr>
<td>Mathematics 241, 231, 201</td>
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<tr>
<td>Physics 251, 232</td>
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<td>Material Science and Engineering 201</td>
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<tr>
<td>Engineering Science and Mechanics 231, 231</td>
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<tr>
<td>Engineering Science and Mechanics 321, 351</td>
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<tr>
<td>Mathematics/Engineering Science Elective</td>
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<tr>
<td>Technical Elective</td>
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</table>

**Junior**

| Basic Engineering 201 | 2 |
| Electrical and Computer Engineering 301, 302 | 6 |
| Engineering Science and Mechanics 322 or 442 | 9 |
| Engineering Science and Mechanics 301, 351 | 4 |
| Mechanical Engineering 331 | 3 |
| Industrial Engineering 405 | 2 |
| Technical Electives | 6 |
| Humanities/Social Science Electives | 6 |

**Senior**

| Engineering Science and Mechanics 431, 452, 453, 465 | 12 |
| Mechanical Engineering 331 | 3 |
| Technical Electives | 6 |
| Humanities/Social Science Electives | 6 |

Total: 136 hours

1Courses (including biomedical engineering courses) approved by the student’s advisor and the department which, when taken together, form a biomedical engineering emphasis. Pre-med, pre-dentistry programs include biology and organic chemistry classes as part of these electives.
2Appropriate course approved by the department.
3Appropriate course approved by the college.

### INDUSTRIAL ENGINEERING

<table>
<thead>
<tr>
<th>Sophomore</th>
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<tbody>
<tr>
<td>English Elective</td>
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<td>Mathematics 241, 231, 201</td>
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<td>Physics 231, 232</td>
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<td>Engineering Science and Mechanics 231</td>
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<tr>
<td>Statistics 251</td>
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<td>Electrical and Computer Engineering 301, 302</td>
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<td>Industrial Engineering 403, 302, 300, 400</td>
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<tr>
<td>Industrial Engineering 301, 304</td>
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<tr>
<td>Nuclear Engineering 310, 311</td>
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<td>Economics 201</td>
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<td>Accounting 201</td>
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<td>Humanities/Social Science Electives</td>
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<tr>
<td>Technical Elective</td>
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**Junior**

| Industrial Engineering 401, 402, 403, 404, 406, 421, 422 | 19 |
| Industrial Engineering Elective | 3 |

Total: 139 hours

### MATERIALS SCIENCE AND ENGINEERING

<table>
<thead>
<tr>
<th>Sophomore</th>
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<tbody>
<tr>
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<tr>
<td>Physics 231, 232</td>
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### MECHANICAL ENGINEERING

**Sophomore Concentration Courses**
- A. Metallurgical Engineering (Materials Science and Engineering 203, 205) 4
- B. Polymer Engineering (Chemistry 110) 4
- C. Materials Engineering (Materials Science and Engineering 201, 203, 340, 342) 7

**Junior Concentration Courses**
- A. Metallurgical Engineering (Materials Science and Engineering 310, 320) 6
- B. Polymer Engineering (Materials Science and Engineering 201, 203, 340, 342) 7
- C. Materials Engineering (Materials Science and Engineering 340, 360) 6

**Senior Concentration Courses**
- A. Metallurgical Engineering (Materials Science and Engineering 421, 422, 423, 424, 470) 5 (Technical Elective) 3
- B. Polymer Engineering (Materials Science and Engineering 442, 443, 444) 9 (Technical Elective) 3 (Materials Science and Engineering Elective) 3
- C. Materials Engineering (Materials Science and Engineering 310, 371, 421, 422, 423, 424) 12 (Materials Science and Engineering Elective) 6

**MECHANICAL ENGINEERING (Hours Credit)**

**Sophomore**
- Mathematics 231, 241, 200 ........................................ 8
- Physics 231, 232 .................................................. 7
- Engineering Science and Mechanics 231, 321 ............. 6
- Basic Engineering 201 ........................................... 2
- Material Science and Engineering 201# ................... 6
- Mechanical Engineering 331 .................................. 3
- Humanities/Social Sciences Elective* ...................... 6
- Junior
- Electrical and Computer Engineering 302 .................. 3
- Humanities/Social Sciences Elective* ...................... 6
- Senior
- Mechanical Engineering 451, 466, 475, 449, 431 .......... 13

**Mechanical Engineering 455 and 469 or 456 and 479** .................................................. 6
**Technical Elective** ............................................. 6
**Humanities/Social Sciences Elective* ...................... 6

**NUCLEAR ENGINEERING (Hours Credit)**

**Sophomore**
- Mathematics 200, 231, 241 ..................................... 9
- Physics 231, 232 .................................................. 7
- Basic Engineering 201 ........................................... 2
- Nuclear Engineering 201, 203, 302, 204 .................... 8
- Electrical and Computer Engineering 301 ................. 3
- Humanities/Social Sciences Elective* ...................... 6
- Junior
- Mathematics 435 .................................................. 3
- Electrical and Computer Engineering 302 ................. 3
- Nuclear Engineering 301, 305, 306, 302, 304 .......... 15
- Engineering Science and Mechanics 321 ................. 3
- Industrial Engineering 401 .................................... 2
- Material Science and Engineering 201* .................... 3
- Humanities/Social Sciences electives ..................... 6
- Senior
- Nuclear Engineering 401, 403, 405, 402, 404, 406 ........ 20
- Technical Electives ............................................. 6
- Humanities/Social Sciences electives ..................... 6

**Total: 136 hours**
College of Human Ecology

Jacquelyn DeJonge, Dean
Frances Andrews, Associate Dean,
Academic Administration
Kermit Duckett, Associate Dean, Graduate
Studies and Research
Joan W. Howell, Coordinator, Undergraduate
Services

The College of Human Ecology ranks
among the top five U.S. colleges of its kind
in student enrollment, and in the number of
master's and doctoral degrees granted. All
undergraduate programs of the College are
accredited by The American Home Econom-
ic Association and the Interior Design:
program is accredited by the Foundation for
Interior Design Education Research (FIDER).
Students in the College are prepared as
specialists within the integrated professional
field of Human Ecology, which is focused on
investigating the interactions between indi-
viduals and families, and their near
environments. The faculty are not content
with studying and teaching "what is"; they
make the College's programs relevant to
career goals and aspirations of today's stu-
dents by promoting "what can and should
be."

Human Ecology graduates are employed
in professional positions that serve individu-
als, families, and consumers by helping them
predict and solve future-oriented problems.
The College's undergraduate programs pre-
pare individuals to work as career
professionals in fields like merchandising,
interior design, hospitality management, tex-
tile science, applied child development, and
dietetics.

All departments of the College conduct
basic and applied research supported by
grants and contracts, and by the Agricultural
Experiment Station. The diverse instructional
and research facilities feature state-of-the-art
equipment: closed-circuit television for
observing children in Child Development
Labs; an accredited small animal laboratory
for nutrition research; a quantity foods dem-
onstration facility for hotel, restaurant
administration; the only non-woven textile
processing laboratory with a melt-blown line
on a college campus in the world, and a
newly renovated microcomputer laboratory.

Fifty full-time faculty staff three depart-
ments in Child and Family Studies; Nutrition
and Food Sciences; and Textiles, Merchan-
dising and Design. Curricula lead to a
Bachelor of Science degree in Human Ecol-
ogy, Hotel and Restaurant Administration, or
Interior Design.

TEACHER CERTIFICATION IN
VOCATIONAL HOME
ECONOMICS EDUCATION AND
EDUCATIONAL PROGRAMS FOR
HOME ECONOMICS EXTENSION
EDUCATION

A certification program for secondary
home economics teachers is available within
the College. The Extension and Community
Services program in Home Economics is
also available for individuals interested in
community-based home economics pro-
grams. Both programs include
comprehensive study in all areas of home
economics as well as in educational princi-
ples, and are housed in the Child and Family
Studies Department.

UNDERGRADUATE STUDY IN
HUMAN ECOLOGY

Curricula in the following majors lead
to a Bachelor of Science degree in Human
Ecology:

Child and Family Studies with concentra-
tions in Child Development and; Family
Science
Nutrition and Food Sciences
Textiles, Merchandising, and Design
with concentrations in Merchandising, Textile
Science, and Apparel

Home Economics Education leads to a
Bachelor of Science in Home Economics
Interior Design leads to a Bachelor of
Science in Interior Design
Hotel and Restaurant Administration
leads to a Bachelor of Science in Hotel Res-
taurant Administration

COLLEGE POLICIES

Students working toward degrees must
complete the last 30 hours of work (two
semesters) at UTK, in a degree program
within the College of Human Ecology. Forty-
eight hours must be earned in 300-400 level
courses. Usual course loads of College
majors are 15-16 hours; course loads over
19 hours must be approved by the Dean's
Office at the time of registration. Prospective
transfer students are advised to plan a total
college program before starting any college-
level work to achieve maximum use of credit
and sequence of course work. All students
whose majors require chemistry must enroll
in the freshman chemistry sequence until
requirements are completed. Transfer stu-
dents are advised to complete freshman
chemistry requirements before transferring
to the College.

Students wishing to transfer to the Col-
lege must have at least a 2.0 grade point
average on a 4.0 scale. Progression require-
ments for each program must be met also.

All freshmen are advised by Dean's Office
staff; other students are assigned an advisor
in the specific program areas. New transfer
students are advised initially by Dean's
Office staff and then are assigned depart-
mental program advisors. Students meet
with academic advisors each semester.

These conferences are designed to help stu-
dents defi ne choices to achieve academic
success; identify career choices available;
attain a balance between general education
and professional studies; and, identify prob-
lems and potential solutions early in the
academic program.

Requirements for All
Curricula

All students take Human Ecology 200
Professional Orientation (3) and Human Eco-
logy 400 Professional Environments (3).

These undergraduate professional courses
emphasize an interdisciplinary, ecological
philosophy of the professional field. The pri-
mary elements of these courses in Human
Ecology are the central place given to the interdependent nature of social relationships; the reciprocal nature of the relationship between social beings and their environments; and a focus on these relationships to search for implications of and predictions for individuals and family well-being. Professional within the field have translated these key elements into the practical application of knowledge to manage human and material resources to help families maximize the potential for their members, individually and corporately.

**PROGRESSION REQUIREMENTS**

All programs in the College have specific requirements for progression.

**CHILD DEVELOPMENT CONCENTRATION**

For progression into the child development concentration, students must meet the following criteria:

1. Complete at least 30 semester hours
2. Attain a minimum grade of “C” in all CFS courses
3. Earn a cumulative GPA of at least 2.3 (transfer hours included)
4. Apply for review by the Early Childhood Education Review Panel
5. Successfully complete an interview, which includes evaluation of written and oral communication skills, with Early Childhood Education Review Panel prior to the junior year of methods (CFS 350, 351) courses. Students will perform within normal limits on speech and written evaluations. If these standards are not met, students will be denied progression and may choose to participate in specified remedial activities through the University Hearing and Speech Center and/or the University’s Writing Center. Students who participate in remedial activities may re-apply for progression into the program (one time only) after waiting at least two semesters. For progression into the Practicum in Family Science (CFS 480), students must meet the following:
   1. Progress into the concentration
   2. Complete prerequisites for family science practicum (15 hours of CFS courses)
   3. Complete at least 90 hours (senior standing)
   4. Obtain written permission from academic advisor
   5. Complete the practicum application during junior year
   6. Attain a minimum grade of “C” in all CFS courses
   7. Earn and maintain a cumulative GPA of at least 2.3 (transfer hours included)
   8. Complete the pre-practicum orientation in the semester prior to practicum

**HOME ECONOMICS EDUCATION MAJORS**

Home Economics Education major with Extension, Community Services Specialization must meet the following criteria:

For progression into Field Work (HEED 445) students must meet the following criteria:

1. Cumulative grade point average of 2.0 or greater
2. A grade of “C” or better in CHE courses (CFS, HE, HEED, ID, NFS, TA prefixes) prior to progression into HEED 445
3. Senior standing
4. Many potential employment opportunities require a minimum CGPA of 2.0 or greater (e.g., Cooperative Extension Service requires a CGPA of 2.5 or greater).

Students with Teacher Education Specialization must meet College of Education progression requirements.

For graduation: Home Economics Education Major with Extension, Community Services Specialization must meet the following criteria:

1. Grade of “S” in HEED 445
2. Grade of “C” or better in all required course work in CHE (CFS, HE, HEED, ID, NFS, TA prefixes)

Students with Teacher Education Specialization should consult the College of Education.

**HOTEL AND RESTAURANT ADMINISTRATION**

For progression into the program, the following must be met:

1. 30 semester hours completed
2. Cumulative GPA of 2.5 or greater
3. Grade of “C” or better in all required course work: English 101 and 121, Math 110 and 121, NFS 100 and 101 and HRA 120

For progression into Field Work (TA 490-492), students must meet the following criteria:

1. Cumulative grade point average of 2.0 or greater
2. Grade of “C” or better in all required NFS prefix course

**TEXTILES AND APPAREL MAJORS**

Students should apply for progression after completing NFS 201 with a grade of “C” or better and before NFS 313.

For progression into major, students must meet the following criteria:

1. Cumulative grade point average 2.0 or greater
2. Grade of “C” or better in each required NFS course

**INTERIOR DESIGN MAJORS**

For progression into the Interior Design major, students must meet the following criteria:

1. Cumulative grade point average of 2.5 or greater
2. Recommendation of faculty committee

**DINING ROOM MAJORS**

For progression into major, students must meet the following criteria:

1. Cumulative grade point average of 2.5 or greater
2. Recommendation of faculty committee
1. Cumulative grade point average 2.3 or greater
2. Portfolio review
3. Interview following completion of ID

For retention, students must meet the following criteria:
1. Grade of "C" or better in each required ID prefix course
2. Grade of "I" must be removed before registration for next ID course

In completion of more than one-half of the hours required. The intention to complete prerequisite courses will be taken and will not apply toward the minor. A student seeking a minor in the College must declare this intention with the Dean's Office by completion of the Declaration of a Minor Form prior to completion of more than one-half of the total hours required. The intention to receive a minor in the College of Human Ecology is declared upon application for graduation. Minors are recorded on the student's transcript without regard to overlap between major and minor course requirements.

Child and Family Studies:
A minor in Child and Family Studies consists of 18 credit hours: 210 Human Development (3); 220 Marriage and Family; Roles and Relationships (3); 320 Parent Education (3); 360 Family Stress (3); and 3 credit hours from: 211 Development in Infancy and Early Childhood (3); 212 Development in Childhood (3); 240 Human Sexuality (3); 312 Adulthood and Aging (3); 345 Family Resource Management (3); 420 Families: Ethnicity, Race, Class, and Culture (3).

A minor in Child Development consists of 12 credit hours: 211 Development in Infancy and Early Childhood (3); 212 Development in Childhood (3); 216 Development in Middle Childhood and Adolescence (3); 312 Adolescence and Community Relations (3); and 3 credit hours selected from: 211 Development in Infancy and Early Childhood (3); 360 Family Stress (3); and 3 credit hours from: 240 Human Sexuality (3); 312 Adulthood and Aging (3); 360 Fam and Func Aspects (3); 420 Families: Ethnicity, Race, Class, and Culture (3).

Nutrition and Food Sciences:
A minor in Nutrition and Food Sciences consists of 18 credit hours: 300 Fundamentals of Nutrition (3) or 313 Advanced Nutrition (4); 311-312 Science of Food (4,4); and 6-7 hours from: 411 Nutrition in Disease (4); 412 Food and Nutrition Resources Management (3); 413 Experimental Food Science (4); 414 Nutrient-Drug Interactions (2); 450 Special Topics: Nutrition and Food Sciences (1-3); 493 Directed Study: Nutrition and Food Sciences (1-9).

Textiles, Merchandising and Design:
A minor in Merchandising consists of 18 credit hours: 120 Textiles I (3); 340 Cultural and Functional Aspects of Apparel (3); 345 Fashion in History (3); 410 Retail Management (3); 415 Fashion Promotion (3); Textiles and Apparel Elective (3).
A minor in Textile Science consists of 18 credit hours: 120 Textiles (3); 320 Textiles II (3); 420 Textile Microscopy and Physical Testing (3); 422 Textile Fiber Chemistry (3); 450 Textiles and Apparel Economics (3); Textiles and Apparel Economics (3); Textile Science Elective (3).

CHILD AND FAMILY STUDIES

Professors:
M. L. Shop (Emerita), Ph. D. Cornell; J. L. Cunningham, Ph. D. Michigan State; G. L. Fox, Ph. D. Michigan; C. E. Gilbert (Emerita), Ed. D. Cornell; R. L. Hightberger (Emerita), Ph. D. Iowa; N. P. Logan (Emerita), Ed. D. Tennessee; V. M. Nordquist (interim Head), Ph. D. Tennessee; E. L. Speer (Emerita), M. A. Columbia; S. Twardosz, Ph. D. Kansas; P. N. White, Ed. D. Tennessee.

Associate Professors:
J. E. Allen, Ph. D. Purdue; C. A. Buehler, Ph. D. Minnesota; J. H. McNinis, Ph. D. Florida State.

Assistant Professors:
B. Barber, Ph. D. Brigham Young; L. Blinn, Ph. D. Ohio State; C. Catron, Ed. D. Vanderbilt; R. M. Hirstoks, Ph. D. Ohio State; G. Pettit, Ph. D. Indiana; D. Tegano, Ph. D. Virginia Tech.

The Department of Child and Family Studies is concerned with the creation/discovery and dissemination of knowledge related to human development and family sciences. The focus is on integrating approaches to the study of child development, educational environments for people of all ages in both formal and informal settings, and family processes that facilitate effective interactions between individuals and society. In teaching, research, and service activities, efforts include facilitating individual and family development, strengthening family relationships, and converting social and learning environments in which people can function more effectively and improving resource management and decision-making in families. Building on a basic understanding of normal development and the behavior of individuals, families, and institutions, attention is directed to the study of challenges faced by families.

Through a combination of classroom instruction and field-based experience, the department prepares undergraduate students for entry-level positions in diverse occupations and for advanced education. The largest career specialization is in work in day care centers as teachers or directors. Students also are prepared as family life educators/interventionists in social agencies, child life/child development specialists, and professional home economists educators in schools, Extension and business.

Within the curriculum of each undergraduate major, students may meet three objectives: they enhance their foundation for learning; they obtain a broad, general education; and they prepare to enter a specialized career field within the profession or graduate study. Each concentration has been constructed to provide a series of educational experiences from broad survey courses to advanced courses of specialized knowledge and from early applied experiences, such as observation and participation, to the professional practicum in work settings. All curricula have been structured by a sequencing of courses in which prerequisites have been established in a logical manner. Through faculty advise- ment, each student develops an individualized set of specific courses, framed by the curriculum of the career specialization, to meet his/her educational goals. The curricula have been designed also to facilitate students' integration of knowledge and applied experiences into a unified program of study that will prepare competent professionals for their career roles and socially responsible citizens for life in a complex and changing culture.

CHILD AND FAMILY STUDIES: CHILD DEVELOPMENT CONCENTRATION

This concentration is designed to meet the educational needs of undergraduates whose career plans are focused on entry level positions in early childhood education programs, agencies delivering services to young children and their families, early childhood education programs that include children with special needs, hospital programs in Child Life directed to particular needs of young children, and similar career fields that recognize distinct developmental needs of and opportunities for children, or whose plans include graduate education.

<table>
<thead>
<tr>
<th>Course</th>
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<td>Child and Family Studies 110</td>
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<td>English 101, 102</td>
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Sophomore

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<td>Nutrition and Food Sciences Elective</td>
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<td>Social Science Elective</td>
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Junior

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<tr>
<td>Child and Family Studies 220, 351, 352, 450</td>
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<td>Computer Science Elective</td>
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Senior

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<td>Child and Family Studies 470</td>
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<td>Child and Family Studies Specialization Electives</td>
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</tbody>
</table>
Human Ecology 400 ........................................ 3
Social Science Elective ................................... 3
Electives ............................................. 0-8
Junior ................................................. 8

Total: 125 hours

Courses are to be chosen from two of the following categories: literature; speech or oral interpretation; art or music appreciation; philosophy or religious studies.

One of the following sequences is to be chosen:

- Astronomy 151 and 152, Biology 110 and 120,
  Chemistry 110 and 120, Chemistry 120 and 130,
  Physics 121 and 122, Zoology 210 and 220.

Students select one of the following applied fields such as nursing, social work, and human services.

Students must select one of the following specializations: Early Childhood Education, Early Childhood Education Administration, Early Childhood Special Education, Child Life, Child Development, or Human Development.

At least 48 hours in 300-400 level courses are required.

SPECIALIZATIONS AVAILABLE IN THE CHILD DEVELOPMENT CONCENTRATION

Students are encouraged to select the following electives for each specialization:

Early Childhood Education - 12 hours (Health 310 - 3 hours; Electives in CFS, Education or Psychology - 9 hours)
Early Childhood Education Administration - 12 hours (CFS 475 - 3 hours; Health 310 - 3 hours; Business Electives - 6 hours)
Early Childhood Special Education - 15 hours (CFS 451 - 3 hours; Special Education Electives - 12 hours)
Child Life - 9 hours (CFS 320 - 3 hours; CFS 360 - 3 hours; Psychology 300 or 330 - 3 hours)
Child Development - 12 hours (CFS 320 - 3 hours; CFS or Psychology Electives - 9 hours)
Human Development - 15 hours (CFS 213 - 3 hours; CFS 312 - 3 hours; CFS or Psychology Electives - 9 hours)

*See Advisor for list of departmentally approved courses for this category.

HOME ECONOMICS EDUCATION

Professors:
- I. Brown (Emerita), Ph. D. Ohio State

Associate Professor:
- J. H. McInnis, Ph. D. Florida State.

Assistant Professor:
- L. Blinn, Ph. D. Ohio State.

This major is designed for specialization in either Home Economics Teacher Education or Home Economics Extension, Business, and Community Education. The specialization in Home Economics Teacher Education meets the professional needs of students who seek certification for teaching consumer and homemaking programs in junior high, secondary and post-secondary schools; teaching in adult and continuing education. The specialization in Home Economics Extension, Business, and Community Education is for students whose career plans include work in community-based home economics programs offering families information and/or services related to Home Economics subject matter (family economics, home management, consumer education, child development, family relations, parenting skills, foods, nutrition, clothing and textiles).

HOME ECONOMICS EDUCATION

Freshman
- Chemistry 100, 110 ..................... 8
- English 101, 102 ......................... 6
- Mathematics Elective ..................... 6
- Nutrition and Food Sciences 100 ........ 3
- Textiles and Apparel 101, 120 ........... 6
- Electives .................................... 4

Sophomore
- Art Related Elective ...................... 3
- Child and Family Studies 210, 220 ....... 6
- Economics 201 ............................ 4
- Home Economics Education 220 ....... 3
- Human Ecology 200 ........................ 3
- History Elective ........................... 3
- Literature Elective ........................ 3
- Nutrition and Food Sciences 101 ...... 3
- Zoology 230 ............................... 5

Junior
- Child and Family Studies 240, 320, 345, 380 .. 12
- Educational and Counseling Psychology 315* .... 3
- *Home Economics Education 320, 420* .... 6
- History Elective ........................... 3
- Literature Elective ........................ 3
- Nutrition and Food Sciences 301 ...... 3
- Textiles and Apparel 350 ............... 3
- Computer Science Elective .............. 3
- Educational Curriculum and Instruction 461* .... 3
- *Home Economics Education 430* ....... 15
- Human Ecology 440 ........................ 4
- Humanities Elective ........................ 3
- Interior Design 310 ...................... 3
- Special Education 570* .................. 2

Total: 125 hours

*Must be chosen from Interior Design 150 or Textiles and Apparel 232 or art appreciation or art history.

*Must be chosen from one semester of American History and one semester of another history course. The evolution of artifacts will not satisfy this requirement.

Courses required for teacher certification are noted with an asterisk. Students not seeking certification should take Home Economics Education 440 and 445 plus 17 hours for specialization in Home Economics Extension, business or community education.

*Must be chosen from the following categories: speech or oral interpretation; music appreciation; philosophy or religious studies.

*At least 48 hours in 300-400 level courses are required.

OCCUPATIONAL ENDORSEMENTS

The following endorsements may be added to the Vocational Home Economics Teaching Certificate. They are not part of the requirements for graduation.

Care and Guidance of Children Endorsement... 10
Child and Family Studies 350 .............. 3
Child and Family Studies 351 .............. 3
Home Economics Education 421 ............ 1
Home Economics Education 445 ............ 3
Clothing Management, Production and Services Endorsement
- Textiles and Apparel 230 .................. 3
- Textiles and Apparel 232 .................. 3
Home Economics Education 421 ............ 1
Home Economics Education 445 ............ 3
Food Management, Production and Services Endorsement
- Nutrition and Food Sciences 220 ....... 3
- Nutrition and Food Sciences 320 ......... 2

*All hours are in the categories listed.
In addition, students with a strong research interest may prepare for research-oriented careers in laboratory settings and with food companies, or graduate students in nutrition and food sciences. Also, the Hotel Restaurant Administration program provides a good background for Master's programs emphasizing food systems administration.

**HOTEL AND RESTAURANT ADMINISTRATION**

The Hotel and Restaurant Administration major focuses on meeting the middle- and upper-level management needs of the food and lodging industry. It is a program that assists students in getting the breadth of knowledge, responsibility and creativity to meet the changing environment of complex management problems in industry. Students who want more emphasis in business may complete a business minor by taking courses established by the College of Business Administration.

The two specializations are foodservice administration and lodging systems. The foodservice area emphasizes quantity food service in a variety of settings, including sanitation, all phases of food quality and cost control theory and practice. The lodging area emphasizes lodging administration, marketing of hospitality services, personnel management and lodging law. Both specializations incorporate knowledge about basic nutrition and the public's concern with wellness.

Both specializations offer extensive field experience in food and lodging properties in Tennessee and in the Southeast. The major requires 9 semesters to integrate knowledge and practice. The curriculum provides a strong base in management, foodservice administration, computation, social sciences, and nutrition. The general education electives help students to sharpen their analytical, conceptual and communication abilities. Graduates of these specializations may start as management trainees in large hotels, and in lodging and restaurant programs with subsequent upward mobility into property management, personnel or purchasing positions. The field experience in the senior years provides a combination of classroom instruction and field based experiences, which give the graduate a competitive edge in attaining career positions.

**NUTRITION AND FOOD SCIENCES**

The Department of Nutrition and Food Sciences provides individuals with concepts and skills required in a changing society. The philosophy of the department fosters an intensive familiarity with a main field of interest and the recognition of one's responsibility to society. This philosophy is reflected in fields of study which integrate basic and applied sciences, humanities and social sciences. Students learn about properties of foods; nutritional needs from the smallest unit of the cell to the individual's needs throughout the lifecycle; the ways that attitudes, and beliefs influence food patterns; and the management of resources in foodservice and lodging systems. Thus, the Departmental programs serve society needs. The program is able to interpret and contribute to social needs in regard to foods, nutrition and wellness, lodging, foodservice and the related management areas, both as professionals and as responsible citizens.

The professional disciplines of Nutrition and Food Sciences and Hotel Restaurant Administration are rooted firmly in general education and provide a clearly defined base of knowledge. The curriculum in the Department is designed for the Nutrition and Food Sciences major includes basic sciences, i.e., chemistry, microbiology, physiology, psychology and sociology. The natural sciences provide a base for understanding food, its functions in the body and the social sciences to better understand cultural aspects of food and food related consumer needs. The study of basic business and management tools enables students in Hotel Restaurant Administration to understand managerial, marketing, technological and computer principles appropriate to the diversity of positions available to graduates entering the marketplace.

**NUTRITION AND FOOD SCIENCES**

<table>
<thead>
<tr>
<th>Professor</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>R. E. Bauchene</td>
<td>Ph. D. Kansas State</td>
</tr>
<tr>
<td>B. R. Carruth</td>
<td>Ph. D. Missouri</td>
</tr>
<tr>
<td>H. W. Quinton</td>
<td>Ed.D. Duke</td>
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<tr>
<td>D. S. Sachan</td>
<td>Ph. D. Illinois</td>
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<tr>
<td>J. T. Smith</td>
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<td>M. A. Smith</td>
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<td>C. Costello</td>
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<td>W. C. Morris</td>
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<td>Ed. D. Columbia</td>
<td>D. L. Hentges</td>
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<tr>
<td>Ph. D. Purdue</td>
<td>J. Powell (Memphis), MPH, North Carolina</td>
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<tr>
<td>Chapel Hill</td>
<td>J. Sneed, Ph. D. Ohio State</td>
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<tr>
<td>S. McGrath</td>
<td>MBA East Texas State</td>
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The Department of Nutrition and Food Sciences provides individuals with concepts and skills required in a changing society. The philosophy of the department fosters an intensive familiarity with a main field of interest and the recognition of one's responsibility to society. This philosophy is reflected in fields of study which integrate basic and applied sciences, humanities and social sciences. Students learn about properties of foods; nutritional needs from the smallest unit of the cell to the individual's needs throughout the lifecycle; the ways that attitudes, and beliefs influence food patterns; and the management of resources in foodservice and lodging systems. Thus, the Departmental programs serve society needs. The program is able to interpret and contribute to social needs in regard to foods, nutrition and wellness, lodging, foodservice and the related management areas, both as professionals and as responsible citizens.

The major requires 9 semesters to integrate knowledge and practice. The curriculum provides a strong base in management, foodservice administration, computation, social sciences, and nutrition. The general education electives help students to sharpen their analytical, conceptual and communication abilities. Graduates of these specializations may start as management trainees in large hotels, and in lodging and restaurant programs with subsequent upward mobility into property management, personnel or purchasing positions. The field experience in the senior years provides a combination of classroom instruction and field based experiences, which give the graduate a competitive edge in attaining career positions.

**NUTRITION AND FOOD SCIENCES**

This major is designed for students interested in basic and applied sciences. Students are expected to acquire advanced education in chemistry, biology, food science, and behavioral sciences. The Nutrition and Food Sciences (dietetics) major is a course of study approved by The American Dietetic Association to meet Minimum Academic Requirements. These requirements are regarded as the basic education component for the preparation of persons entering the dietetic profession and there are stated competencies in several knowledge areas. The generality emphasis of this program prepares individuals to enter the dietetic profession in general dietetics and includes foodservice systems management, management theory and principles and communication sciences including computer and statistical applications. Graduates are prepared to enter internships with a generalist emphasis. An internship, or an approved pre-professional practice experience or a graduate degree combined with an approved experience beyond the baccalaureate degree completes the requirement for eligibility as a member of The American Dietetic Association and qualifies the graduate to apply for the Registration Examination to become a Registered Dietitian (R.D.). Students may receive more information from the department about R.D. requirements. R.D.s work as members of health care teams in acute care hospitals and community-based settings, home health care programs, college and university foodservice facilities, wellness...
Textiles, Merchandising and Design

The department is dedicated to providing quality undergraduate and graduate teaching, research and public service in the areas of Apparel, Interior Design, Merchandising and Textile Science around the focus of individual needs in the near environment, and is concerned with the design-through-manufacturing phases of products in the home and work environments. Physical scientists, designers, social and economic scientists and historians combine their knowledge with the overriding concern of human interaction in the environment.

Through a combination of classroom instruction and field based experience, students prepare for entry level positions in diverse occupations and for advanced education.

The largest career concentration in the department is Merchandising, which is one of the largest programs of this type in the Southeast. Retailing is one of the fastest growing segments of our economy, and opportunities for employment will be excellent through the 1990's.

The Interior Design program is accredited by the Foundation for Interior Design Education Research (FIDER), and is the only five year accredited Interior Design program in the State of Tennessee. Career opportunities are excellent wherever living and working spaces are being planned.

The Textile Science career concentration affords students with an interest in science a career application of technology in textile product development and evaluation.

The Apparel career concentration will qualify graduates for a wide range of management opportunities in the apparel industry in both production and distribution. All of these baccalaureate degrees are guided by faculty in the selection of locations for field study experiences where students are guided by faculty in the selection of locations for on-the-job experiences related to their career area as a part of their educational program. Professional contacts made in field study experiences often lead to opportunities for career placement upon graduation.

INTERIOR DESIGN

This five-year major is designed for students whose career plans are focused on designing interior environments for living and working spaces. Through coursework and field study experiences, students develop specialized problem solving skills and knowledge for the analysis, planning and design of interior architectural environments. They apply the use of lighting, color and mechanical systems as they plan spaces for both residential and commercial settings. The program emphasizes human well-being and the behavioral aspects of people in their environments. Students will gain experience in a state-of-the-art computer aided design laboratory, as well as in Interior Design studios. Graduates can expect careers as interior designers for architectural firms or as space planners for hotel or retail chains, in addition to opportunities as product representatives for contract furniture manufacturers or in private practice handling residential or commercial design needs.
TEXTILE SCIENCE CONCENTRATION

TEXTILES AND APPAREL:

TEXTILE SCIENCE CONCENTRATION

This concentration is designed for students whose career plans are focused on entry level positions in textile related industries. Students with a strong base in math and the natural sciences apply these areas to a study of the physical and chemical properties of fibers, yarns and finishes. The department's research facilities provide unique opportunities for undergraduate students to be exposed to opportunities in industry and the technological advances. Graduates have career opportunities in companies that produce and market textile chemicals, fibers and fabrics and supply apparel, home furnishings and other textile related products to the consumer. A graduate may expect a career as a textile technologist who tests fabric specifications for a major textile manufacturer or as a research assistant who develops product specifications and acts as a liaison between manufacturing of textiles and their applications in apparel.

APPAREL CONCENTRATION

This concentration is designed for students whose career plans are focused on entry level positions in the apparel production and management area. Students gain an appreciation for costume design’s historic roots and a sense of tomorrow’s fashion trends. The curriculum includes business courses for management of personnel and company resources, and the basis of the apparel production process from fabric selection to garment shipping. The use of the department's computer-aided-design laboratory for apparel production allows students to design and grade patterns and develop pattern layouts which interface with the rapidly expanding computer applications in the apparel industry. Students selecting this concentration may expect to take positions in apparel plants as supervisors or in establishing quality control operations, or in establishing quality control standards and managing human resources to assure worker satisfaction.
College of Liberal Arts

Lorman Retner, Dean
Charles O. Jackson, Associate Dean
Jack Armistead, Associate Dean for Academic Programs
Harry C. Jacobson, Associate Dean for Student Academic Affairs
Lee Magid, Associate Dean for Research, Resource Development, and Space

The College of Liberal Arts is home to a wide array of academic disciplines and interdisciplinary programs. Such diverse areas of study as Computer Science and Classics, Anthropology and Zoology, Women’s Studies and Latin American Studies are represented among the thirty-seven departments and twelve special programs that compose the College.

The faculty of the College is committed to providing both comprehensive general education and concentrated study in a particular field to all students enrolled at The University of Tennessee, Knoxville. General education offers opportunities to master the basic learning skills necessary to understand a specialized area of study and is essential for the continuation of learning throughout life. Liberal Arts faculty are also committed to educating students in a discipline. Education with a disciplinary focus prepares students for further study at the graduate level and for careers in business, public service, or any other endeavor. As our world becomes both more specialized and more changeable, the need to find the right balance between general and specialized knowledge becomes essential.

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 enable one to develop 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 talents 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 great universities of the world are so labeled because their faculties have earned the reputation of being renowned scholars. The University of Tennessee, Knoxville has earned such a reputation because of the quality of the research and creative activity of its faculty. The student who studies in the College of Liberal Arts has joined a community of scholars. To study with such a talented faculty is to experience the best education possible.

The faculty of the College of Liberal Arts provide to all students a general education and to thousands of students a year a more specialized education in any one of thirty-seven disciplines and a dozen or more interdisciplinary programs. The College’s faculty help their students prepare for any and all careers. Faculty research and creative activity is the foundation on which education in this College is built. As a result of that faculty endeavor the lives of students are enriched and the world’s body of knowledge grows. That is the basic mission of the College of Liberal Arts faculty in a research University.

PROGRAMS OF STUDY

Seeking the broad, general goals of a liberal education, students come into the college also 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.

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.

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.

College Scholars Program - Intended for a limited number of students who are especially qualified and motivated and who have been selected to undertake this honors program, the College Scholars Program permits the students maximum freedom to design a curriculum to meet particular interests and goals.

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) or in the 3+2 program in business and liberal arts. Students taking one of the health sciences curricula proceed directly to specialized training in the chosen area after the third year of liberal arts study and complete the first year of professional study in lieu of satisfying the requirements for the B.A. degree with a major concentration in the college. Students in the 3+2 business and liberal arts program take three years of coursework leading to a B.A. in Liberal Arts, followed by two years of study in the College of Business leading to the M.B.A.
(2) BACHELOR OF SCIENCE
A Bachelor of Science degree, offered in selected departments and programs, is designed for students who wish to pursue a more scientifically or professionally oriented program of study. Three programs leading to this degree are offered:

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.

Bachelor of Science in Chemistry - (See Department of Chemistry.)

(3) BACHELOR OF FINE ARTS
(See Department of Art.)

(4) BACHELOR OF MUSIC
(See Department of Music.)

REQUIREMENTS FOR DEGREES
Bachelor of Arts and Bachelor of Science
Basic Programs
Each student seeking a Bachelor of Arts or Bachelor of Science degree must develop a program which includes the following:

1. All University degree requirements as stated in the front section of the Undergraduate Catalog;
2. A minimum of 124 credit hours;
3. At least 40 credit hours in courses numbered 300 or above;
4. Appropriate work to satisfy basic skills and distribution requirements, counting no course in more than one area (not required in the College Scholars Program);
5. Completion of at least one major (24-40 credits at 200 level or above for B.S. majors and 24-37 credits at 200 level or above for B.A. majors) (up to 6 hours in the major may also be used, where listed, to satisfy basic skills or distribution requirements);
6. Students may choose to develop one or more minors (minimum 15 hours at the 200 level and above); and
7. Students may take up to 20 hours of courses Satisfactory/No Credit in any area outside the major or minor, basic skills or distribution requirements.

PROGRAMS LEADING TO BACHELOR OF ARTS AND BACHELOR OF SCIENCE DEGREES
The Bachelor of Arts and the Bachelor of Science Degrees share the same program of Basic Skills and Distribution Requirements (except where noted otherwise).

BASIC SKILLS
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.

Required:
1. Students may meet this requirement in one of the following four ways: (0-6 credits)
2. By completing six credits in English writing courses of the following series: (a) English 101 and 102 (English Composition). (b) English 118 (Honor: English Composition) and English 102 (English Composition). Students who obtain a grade of A or B in 118 will complete their freshman requirement by choosing 102, a sophomores literature course in the English Department, or English 355 Advanced Expository Writing. If the sophomores literature course appears on the list for Humanities distribution requirements, it may also be counted toward those requirements. (c) 131 and 132 (Composition for Non-Native Speakers of English).
3. 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.
4. By obtaining CLEP credit for English composition. (Details available from the English Department.) NOTE: A student must complete the English Composition requirement prior to enrolling in 200 level (or above) English courses.

Foreign Language
Purpose:
1. To learn the basic grammar, syntax, and vocabulary of a foreign language.
2. To be able to use a foreign language independently as a tool for oral communication and reading.
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 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 takes the introductory level sequence in the same language (usually the 100-level sequence) may not use such credit to satisfy requirements for graduation (0-12 credits). 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 131 and 132 and by passing two English language literature courses at the 200-level. These literature courses may also be counted toward the Humanities distribution requirements. (Beginning Fall 1987, no credit for coursework completed in order to satisfy an association deficiency in foreign language may be used to satisfy graduation requirements.)


German 201-202 Intermediate German; 203-204 Honors: Intermediate German.
Italian 211-212 Intermediate Italian.
Portuguese 211-212 Intermediate Portuguese.
Russian 201-202 Intermediate Russian.

Mathematics, Formal Reasoning, or Logic
Purpose:
1. To develop the basic calculation skills necessary to full appreciation of 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 making.

Requirement:
One three-credit course chosen from those listed below:
Students with a Mathematics 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 (0-3 credits). Standards for waiver or proficiency examinations will be set by the appropriate department. Exemption from this requirement will also be granted to students who complete a two-course mathematics package under Divisional Distribution.

Mathematics 110 Algebraic Reasoning;
130 Precalculus.
Philosophy 135 Formal Logic.

DISTRIBUTION
1. Divisional Distribution
a. Non-United States History
Purpose:
1. To acquire an appreciation for the richness of the past as a statement of human capability, aspiration, and achievement.
2. To develop a historical perspective on a civilization that differs from or serves as the foundation for studying one's own.
3. To develop the ability to use a foreign language and decision making.
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 six-credit, two-course, writing emphasis*, lower-division sequence in non-United States History (6 credits). International students may fulfill this requirement with a United States History sequence. The following sequences satisfy this requirement:

Asian Studies 101-102 Asian Civilization.

*Writing Emphasis Courses shall require out-of-class writing assignments of at least 3000 words plus at least one in-class essay examination.
History 151-152 Development of Western Civilization; 157-158 Honors: Development of Western Civilization; 161-162 A History of World Civilization.

Latin American Studies 251-252 Introduction to Latin American Studies.

b. Natural Science

Purpose:

a. To know and understand the basic vocabulary of at least one scientific discipline.

b. To learn the basic discoveries and their importance in one or more disciplines.

c. To be able to use the tools (i.e. mathematics, laboratory equipment, computers, etc.) of one scientific discipline.

d. To understand how to devise hypotheses and how to devise and perform experiments to test them.

e. To learn to apply the methods of at least one scientific discipline in a "hands on" laboratory experience.

f. To be able to understand a situation on a college level from one particular scientific perspective.

Requirement:

a. Part I: A two-course physical or biological science sequence that includes laboratory work. The following sequences satisfy Part I of this requirement:

- Astronomy 161-162 Introductory Astronomy with Laboratory; 217-218 Honors: Introductory Astronomy.
- Biology 110-120 General Biology.
- Botany 110-120 General Botany; 118-128 Honors: General Botany.
- Chemistry 100 Principles of Chemistry; 110 Introduction to Organic and Biochemistry; 120-130 General Chemistry; 121-131 General Chemistry for Chemistry majors; 128-138 Honors: General Chemistry.
- Earth and Planetary Geology 232 Geography of the Natural Environment.
- Geology 101-102 General Geology I, II.

b. Part II: A two-course package that includes a minimum of 12 credits from at least two departments or programmatic areas indicated below.

- Anthropology 120 Prehistoric Archaeology; 130 Cultural Anthropology; 230 American Cultures; 392 Principles of Archaeology.
- Anthropology 202-203 Introduction to Afro-American Studies.
- Anthropology 120 Prehistoric Archaeology; 130 Cultural Anthropology; 230 American Cultures; 392 Principles of Archaeology.
- Botany 305 Socio-Economic Impact of Plants.
- Economics 100 Survey of Economic Ideas; 201 Introductory Economics: A Survey Course; 207 Honors: Introductory Economics.
- Geography 101-102 World Geography; 320 Cultural Geography: Core Concepts; 323 Behavioral Geography.
- Human Services 220 Introduction to Human Services.
- Music History 310 Introduction to Afro-American Music (Same as Afro-American Studies 310); 390 World Music.
- Political Science 101 United States Government and Politics; 310 Political Community; 107 Honors: United States Government Politics.
- Psychology 110 General Psychology; 117 Honors: General Psychology; 220 Behavior and Experience: Humanistic Psychology; 390 Social Psychology.
- Religious Studies 232 Varieties of Religious Community (Same as Sociology 232); 301 Religious Myth, Symbol, and Ritual.
- Sociology 100 General Sociology; 110 Social Problems and Social Change; 344 Power in Society; 370 Social Psychology.
- Speech Communication 100 Introduction to Speech Communication; 220 Interpersonal Communication; 300 Nonverbal Communication; 330 Group Communication.
- Women's Studies 220 Women in Society; 375 Gender in Society. (Same as Sociology 375.)

d. Humanities

Purpose:

a. To learn to appreciate and interpret significant literary, philosophical, or religious texts by study and application of selected methods or traditions of thought.

b. 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.

c. To develop further writing skills.

d. 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 evaluates.

e. 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:

a. Bachelor of Arts students:

1. Part I: Literature or Philosophical Perspectives. A two-semester course package in either literature or a philosophical perspective. Writing Emphasis Courses.

2. Part II: Arts, Literature or Philosophical Perspectives. Either one course in the study or practice of the arts; or one course in literature if a philosophical perspectives package is chosen to meet Part I; or one course in a philosophical perspective if a literature package is chosen for Part I. Writing Emphasis Courses, except for hands-on practice of the arts courses. Part I and Part II will be satisfied by selecting packages/courses from the following lists in accordance with the instructions above.

b. Bachelor of Science students must complete a minimum of 6 credits from the courses listed below; not more than 3 credits may be taken in the Arts.

1. The following course packages are designated literature packages:


Classics 253-254 Greek and Roman Literature in English Translation.

Comparative Literature 202-203 Cross-cultural Perspectives in World Literature.

English 201 British Literature I: Beowulf through Johnson; 202 British Literature II; Wordsworth to the Present; 221 Literature of the Western World I: Ancient, Medieval and Renaissance; 222 Literature of the Western World II: Enlightenment, Romantic and Modern;

(two of three) 231 American Literature I: Colonial Era to the Civil War; 232 American Literature II: Civil War to the Present; 233 Major Black Writers;

(two of three) 251 Introduction to Poetry; 252 Introduction to Drama; 253 Introduction to Fiction.

French 291-292 French Literature in English Translation.

German 325 Modern German Novel in English Translation; 326 German Drama in English Translation.

Medieval Studies 261 Medieval Culture: Readings from the Early Middle Ages; 500-1000; 262 Medieval Culture: Readings from the Later Middle Ages, 1000-1500.


Russian 221-222 Russian Literature in English Translation.

Writing Emphasis Courses shall require out-of-class writing assignments of at least 3000 words plus at least one in-class essay examination.
Spanish 291 Spanish Literature in English Translation; 292 Spanish American Literature in English Translation.


2. The following course packages are designated philosophical perspectives packages.

Classics 221 Early Greek Mythology; 222 Classical Greek and Roman Mythology.

Philosophy 110 The Human Condition: Value and Reality; 111 The Human Condition: Knowledge and Reality; 120 Foundations of Western Thought: Antiquity through 1500; 121 Foundations of Western Thought: 1500 through Early Twentieth Century; 240 Ethics; 344 Professional Responsibility (Same as Religious Studies 344).

380 The Concept of Woman; 382 Philosophy of Feminism.

Religious Studies 101 World Religions in History; 102 The Comparison of World Religions.

211 Ways of Understanding Religion; 212 Criticism of Religion.


Women's Studies 380 The Concept of Woman; 382 Philosophy of Feminism.

3. The following courses are designated practice of the Arts courses:

Art 191 Introduction to Studio Art: Various Media.

English 263 Introduction to Creative Writing.


English 280 Introduction to Oral Interpretation; 380 Oral interpretation of Prose Literature; 385 Oral Interpretation of Poetry.

Theatre 220-221 Acting; 260 Fundamentals of Lighting and Sound Production.

4. The following courses are designated Study of the Arts courses:

Art 172 Western Art I; 173 Western Art II.

183 Asian Art.

Classics 232 Archaeology and Art of Ancient Greece; 233 Archaeology and Art of Etruria and Rome.

Music General 110 Music Appreciation; 120 History of Rock.

Theatre 100 Introduction to Theatre; 210-211 Survey of World Drama.

Women's Studies 330 Women in Music. (Same as Music History 330.)

Upper Level Distribution

Bachelor of Arts students must complete a minimum of 6 credits in one of the three areas indicated below and 3 credits from one of the remaining two areas (total 9 credits for this requirement). Writing Emphasis Courses1.

Bachelor of Science students must complete a minimum of 6 credits in two of the three areas indicated below (total 6 credits for this requirement). Writing Emphasis Courses1:

a. United States Studies

Purpose:

a. To develop an appreciation and knowledge of United States culture and civilization.

b. To provide a basis from which to compare foreign cultures and civilizations.

c. To develop a critical understanding of the sources of values and traditions that constitute contemporary United States civilization.

d. To develop an understanding of the relationship between individual and societal behavior in a highly interdependent world system.

e. To further develop writing skills.

The following courses are designated United States Studies courses:

Afro-American Studies 364 Contemporary Issues in African American Education (Same as Ed. C&I 364); 429 History and Philosophy of Afro-American Education (Same as Ed. C&I 429); 480 Black Communities in Urban America; 483 Afro-American Women in American Society (Same as Women's Studies 483).

American Studies 310 Introduction to American Culture: Voices of Dissent.

Anthropology 310 North American Indians; 312 Appalachian Culture; 315 Afro-American Anthropology (Same as Afro-American Studies 315); 390 North American Prehistory.

Economics 331 Government and Business.

English 332 Women in American Literature (Same as Women's Studies 332); 333 Black American Literature and Aesthetics; 334 Film and American Culture (Same as American Studies 334).

Geography 361 Regional Geography of the United States and Canada; 363 Geography of the American South; 365 Geography of Appalachia; 425 Historical Geography of the United States and Canada.


Music History 380 History of Jazz; 440 Music of North America.

Philosophy 390 Philosophical Foundations of Democracy; 425 American Philosophy.

Political Science 310 Comparative Issues in Asian Public Policy; 312 Popular Culture and American Politics; 330 Law in American Society; 374 American Political Thought.


Sociology 310 American Society; 340 Class Structure; 343 Race and Ethnicity (Same as Afro-American Studies 343); 455 Society and Law.

Speech Communication 466 Rhetoric of the Women's Rights Movement.

Theatre 312-313 History of the American Theatre.

Women's Studies 310 Emergence of the Modern American Woman; 434 Psychology of Gender (Same as Psychology 434); 453 Women in American History; 466 Rhetoric of the Women's Rights Movement (Same as Speech Communication 466).

b. Foreign Studies

Purpose:

a. To develop an appreciation and knowledge of a foreign culture and civilization.

b. To provide a basis from which a student can analyze her or his own culture.

c. To develop a critical understanding of the sources of values and traditions that constitute a foreign culture and civilization.

d. To develop an understanding of the relationship between individual and societal behavior in a highly interdependent world system.

e. To further develop writing skills.

The following courses are designated Foreign Studies courses:

Anthropology 314 Peoples and Cultures of Africa (Same as Afro-American Studies 314); 461 African Prehistory (Same as Afro-American Studies 461).

Geography 379 Geography of Africa (Same as Afro-American Studies 379).

Political Science 452 Black African Politics (Same as Afro-American Studies 452).

Religious Studies 373 African Religions (Same as Afro-American Studies 373 and Anthropology 373).

Europe and the Soviet Union

Anthropology 462 Early European Prehistory.

Classics 331 Archaeology of the Aegean Bronze Age and Early Greece; 334 Cities and Sanctuaries of the Ancient Greek World; 381 Greek Civilization; 382 Roman Civilization.

Economics 325 Economic History of the North Atlantic Community.

English 301 British Culture to 1660; 302 British Culture: 1660 to Present; 401 Medieval Literature.

French 420 French Cinema; 431 Highlights of French Civilization; 432 Contemporary French Culture.

Geography 375 Geography of the Soviet Union.

German 323 German Film; 363 Modern German Culture.

History 319 Modern Europe, 1750-1914; 320 Contemporary Europe, 1900-present.

Medieval Studies 403 Seminar in Medieval Studies.

Philosophy 320 Ancient Western Philosophy; 322 Medieval Philosophy; 324 Seventeenth- and Eighteenth-Century Philos-

1Writing Emphasis Courses shall require out-of-class writing assignments of at least 2000 words plus at least one in-class essay examination.
ophy; 326 Nineteenth- and Twentieth-Century Philosophy.
Political Science 361 Politics in Western Democracies; 459 Government and Politics of the Soviet Union; 469 Soviet Foreign Policy.
Russian 371-372 Background and Main Currents of Russian Culture.
Russian and East European Studies 410 Selected Topics in Russian and East European Studies.
Spanish 431 Spanish Civilization.
Women's Studies 324 Women in French Culture (Same as French 324); 383 Women in the Greek and Roman World (Same as Classics 383); 432 Women in European History (Same as East History 432).
Latin America
Anthropology 313 Peoples and Cultures of Mesoamerica (Same as Latin American Studies 313).
Economics 424 Political Economy of World Development (when topic is Latin American).
Geography 372 Geography of Middle America (Same as Latin American Studies 372); 373 Geography of South America (Same as Latin American Studies 373).
History 360-361 History of Latin America (Same as Latin American Studies 360-361).
Latin American Studies 401 Cultural Plurality and Institutional Changes in Latin America.
Political Science 355 Latin American Government and Politics I (Same as Latin American Studies 355); 455 Latin American Government and Politics II (Same as Latin American Studies 455).
Spanish 471 Latin American Civilization (Same as Latin American Studies 471).
Middle East
Anthropology 463 Rise of Complex Civilizations.
History 369-370 History of the Middle East.
Religious Studies 311 Ancient Hebraic Religious Traditions; 332 Islam.
Critical Issues in Foreign Studies Economics 323 Economic Development (Tentative); 324 Comparative Economic Systems.
History 374 The West and the Third World Since 1870; 375 Revolutions in Historical Perspective.
Political Science 350 Political Change in Developing Areas; 365 Introduction to International Relations.
Religious Studies 371 Eastern Religions and Western Thought.
Sociology 446 The Modern World System.
c. Capstone Experience
Purpose
a. To offer an intensive integrative experience which will substantially broaden the student's comprehension of the major.
b. To increase significantly an understanding of the ways in which the ideas, methods, and achievements in a major area of study have affected modern society.
c. To examine a major field of study from a value-oriented perspective.
This requires the student's mastery of prose communication within the professional context of their major.
The following courses are designated Capstone Courses: NOTE: Consult with major department for additional approved courses. Course credits must be taken in the major area unless otherwise approved by the department. It is recommended that this option be satisfied during the senior year.
(1) Required Major
Requirements for specific majors vary by program and are discussed under each department or program. A major consists of at least 24-40 credit hours in courses numbered 200 or above as specified by the department or program. Up to 6 credit hours in the major may also be used to satisfy basic skills or distribution requirements where listed. In addition, students making A or B in English 118 may use a 200-level literature course in the English Department to satisfy both the Basic Skills English Composition requirement and part of their Humanities requirement if the course is listed there. A minimum grade of C must be earned in every course counted as part of a major, and students transferring from other institutions must complete at least 9 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 an Individualized Program (described below). Majors available in the Basic Program for a B.A. or B.S. include: Anthropology, Art, Art History, Audiology, Biochemistry, Biology, Botany, Chemistry, Classics, Computer Science, Cultural Studies, Economics, English, French, Geogrophy, Geology, German, History, Human Services, Italian, Mathematics, Microbiology, Music, Philosophy, Physics, Political Science, Psychology, Religious Studies, Russian, Sociology, Spanish, Speech Communication, 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 majors or 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 major or among minors and Basic Skills and Distribution requirements. Students who satisfy the requirements of a degree in a college other than Liberal Arts must have a minor inside the College of Liberal Arts with the approval of the degree granting unit.
The minimum requirement for a minor is 15 credit hours in courses numbered 200 or above. Minors are available in most departments or programs in which majors are offered, and also in Portuguese. 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 15 credit hours required for a minor must be completed at The University of Tennessee, Knoxville.
Business Minor for Non-Business Students: Requirements include the following courses; Accounting 201-202, Economics 201, Statistics 201, and 12 hours of upper-division Business electives at UTK. No more than 3 upper-division hours of Accounting, Economics, or Statistics may be used for the minor. Students are responsible for meeting all prerequisites for elective 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 requirements. This dimension of the student's experience in the University represents that freedom within which total education may expanded, built upon, 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 experience.
Only the students' imagination and initiative and the willingness to conceive and develop a meaningful academic program limit the choices of supplementary elective courses.
INDIVIDUALIZED PROGRAM

The Basic Program described above will meet the educational needs of most students enrolling in the College of Liberal Arts. However, some will come with particular strengths in their preparation or with special interests which do not coincide with the departmental or interdepartmental majors specified in the Basic Program. For these students the Individualized Program has been established as a means of attaining a closer correlation between student needs and academic programs.

Students in the Individualized Program will satisfy all the 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 24 hours in courses numbered above 200), 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.

COLLEGE SCHOLARS PROGRAM

A limited number of freshmen, entering transfer students with fewer than 42 credit hours, and resident students with fewer than 62 credit hours are invited each year to enter this distinguished honors curriculum. Selection is based on previous academic record, test scores, recommendations, a written essay, and a personal interview. Admission is provisional for two semesters; continuation is dependent 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 requirements in order to have such majors or minor officially recognized.

Further information and applications may be obtained from the Liberal Arts Advising Center.

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 93 hours while enrolled in the college, and the B. A. degree is granted upon satisfactory completion of the first year of study at UT-Memphis. In the four-year program the degree is granted upon completion of 124 or more credit hours while enrolled in the college, including a major of 24 or more hours in addition to the courses listed below. The requirement for a major is waived for those completing their fourth year at UT-Memphis. Students in either the three- or four-year program must complete the last 30 hours of credit in residence at The University of Tennessee, Knoxville, before entering UT-Memphis.

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 or equivalent.

Therefore, pre-dental students are encouraged to plan to complete all requirements for the B. A. or B. S. degree before enrolling in the College of Dentistry.

PRE-MEDICAL PROGRAM

The college offers a joint B. A./M. B. A. program with the College of Business Administration. Admission requirements are higher than those normally expected of M. B. A. applicants. Desired qualifications include a minimum of 3.4 G. P. A. and a Graduate Management Admission Test Score of 600 or higher.

Students in this program take their first three years of coursework in Liberal Arts, and their last two years in the College of Business Administration. Within their first three years, students will fulfill all general education requirements for the B. A. degree, both upper and lower division, along with a minor offered by one of the Liberal Arts departments. They may use one Economics course only to fulfill distribution requirements, and they are required to take a year of calculus as the only pre-requisite to the M. B. A.

Students interested in the Dual B. A. / M. B. A. program are counseled initially in the Liberal Arts Advising Center regarding admission standards and Liberal Arts requirements. At the end of their second year, they will have a conference with the Associate Dean for Graduate Business Programs and be advised of their prospects for formal admission. If the student is a likely candidate, he/she will be advised to take the G. M. A. T. in October of the third year and to submit an application to the M. B. A. program. The admission decision will be made by January of the third year.

Upon Admission, students will begin M. B. A. coursework in the fourth year and be awarded a B. A degree at the end of that year. Students will take 3 hours of graduate course work during their senior year under the senior privilege rule, which requires them to notify the Graduate School in advance of the course for graduate credit. Upon successful completion of the fifth year the student will receive the M. B. A. degree.

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 for students preparing for the study of medicine. Both programs are based upon the curriculum outlined below. In the three-year program the student must complete at least 93 credit hours while enrolled in the college, and the B. A. degree is granted upon satisfactory completion of the
first year of study at UT-Memphis. In the four-year program the degree is granted upon completion of 124 or more credit hours while enrolled in the college, including a major of 24 or more hours in addition to the courses outlined below. The requirements for a major are outlined for those taking their four-year program at UT-Memphis. Students in either the three- or four-year program must complete the last 30 hours of credit in residence at UT-K before entering UT-Memphis.

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

<table>
<thead>
<tr>
<th>Hours Credit</th>
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</thead>
<tbody>
<tr>
<td>3English 101, 102 or equivalent...</td>
<td>6</td>
</tr>
<tr>
<td>3Biology 110-120 or Zoology 117-127...</td>
<td>8</td>
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<tr>
<td>3Chemistry 125-130...</td>
<td>8</td>
</tr>
<tr>
<td>3Mathematics...</td>
<td>9-10</td>
</tr>
</tbody>
</table>

Sophomore

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3Chemistry 350, 356, 369...</td>
<td>8</td>
</tr>
<tr>
<td>3Physics 221, 222...</td>
<td>8</td>
</tr>
<tr>
<td>3Divisional Distribution (D) Humanities Part I...</td>
<td>3-6</td>
</tr>
<tr>
<td>3Divisional Distribution (A) Non U.S. History...</td>
<td>6</td>
</tr>
<tr>
<td>4Electives...</td>
<td>3</td>
</tr>
<tr>
<td>3Basic Skills (B) Foreign Language (Intermediate Level Sequence)...</td>
<td>6</td>
</tr>
<tr>
<td>6Junior...</td>
<td></td>
</tr>
<tr>
<td>3Divisional Distribution (D) Humanities Part II...</td>
<td>3-6</td>
</tr>
<tr>
<td>3Divisional Distribution (C) Social Sciences...</td>
<td>6-12</td>
</tr>
<tr>
<td>4Upper Level Distribution (A) U.S. Studies (B) Foreign Studies or (C) Capstone Experience...</td>
<td>6-9</td>
</tr>
<tr>
<td>7Electives...</td>
<td>9</td>
</tr>
</tbody>
</table>

Total: 89-105 hours

Senior

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Completion of major program and B.A./B.S. requirements or completion of one year at UT-Memphis...</td>
<td></td>
</tr>
</tbody>
</table>

Total: 124 Minimum hours

1Or equivalent honors courses.

2Math placement depends on high school courses and grades, ACT scores, and BA/BS requirements. A math placement handout is available in the Liberal Arts Advising Center, 220 Ayres Hall. All students must complete the Math Basic Skills requirements as outlined in the Liberal Arts curriculum.

3This requirement assumes a student has had enough language background in high school to begin an intermediate language sequence at UT-K.

4The College of Medicine at E.T.S.U. requires two quarters of literature. BA students must take a two-semester course package in either literature or a philosophical perspective for Humanities, Part I and for Part II, one course from the remaining lists. BS students complete a minimum of six credits from the four lists under the Humanities requirement; not more than 3 credits may be taken in Arts.

5BA students must complete a minimum of 12 credits from at least two areas; BS students must complete a minimum of 6 credits from at least two areas for the Social Science requirement.

6BA students must complete a minimum of 6 credits in one of the three areas and 3 credits from one of the remaining two areas. BS students must complete a minimum of 6 credits in two of the three areas. (Upper Level Distribution).

7Although not specifically required by the College of Medicine, the Pre-Medical Advisory Committee strongly recommends that students include additional work in Chemistry 310-319, Zoology 330-351 and in Microbiology 310-319.

8Math placement depends on high school courses and grades, ACT scores, and BA/BS requirements. A math placement handout is available in the Liberal Arts Advising Center, 220 Ayres Hall. All students must complete the Math Basic Skills requirements as outlined in the Liberal Arts curriculum. Mathematics 115-121 or Mathematics 121-122 are required for pre-medical technology students.

9Students having completed the 350-350 Organic series may substitute it for Biochemistry 310.

**SCIENCE-MEDICAL TECHNOLOGY CURRICULUM**

Students who complete the Science-Medical Technology Curriculum receive the B.S. degree with a major in medical technology from the College of Liberal Arts. The curriculum requires a minimum of 92 hours of credit which includes the Basic Skills and Distribution requirements of the college prior to application for admission to a final year of study at The University of Tennessee Memorial Research Center and Hospital in Knoxville (UTMRCH). After completion of the course of study at UTMRC, a Certificate of Laboratory Training is awarded by UTMRC. Students are then eligible for examination by the Board of Registry of the American Society of Clinical Pathologists in order to be certified as registered medical technologists.

**PRE-PHARMACY PROGRAMS**

The college offers three programs preparing students for the study of pharmacy at UT-Memphis. The Doctor of Pharmacy (Pharm.D.) degree is conferred by UT-Memphis upon completion of four years of professional studies 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 three-year program prepares students to be admitted to the College of Pharmacy upon completion of 60 hours of a prescribed course of study in the College 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 the professional degree in pharmacy from UT-Memphis, are based upon the program outlined below. In the three-year program, the student must complete at least 93 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 in Memphis. In the four-year program the B.A. or B.S. degree is granted upon completion of 124 or more credit hours while enrolled in the college, including a major of 24 or more hours in addition to the courses outlined below. The requirement for a major is waived for those taking their fourth year at UT-Memphis. Students in either the three- or four-year program must complete the last 50 hours of credit in residence at The University of Tennessee, Knoxville, before enrolling in the College of Pharmacy.

**Pre-Pharmacy Programs**

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3English 101-102; or equivalent...</td>
<td>6</td>
</tr>
<tr>
<td>3Chemistry 123-124...</td>
<td>8</td>
</tr>
<tr>
<td>3Basic Skills Foreign Language (Intermediate Level Sequence)...</td>
<td>6</td>
</tr>
<tr>
<td>2Mathematics...</td>
<td>9-10</td>
</tr>
<tr>
<td>4Sophomore...</td>
<td></td>
</tr>
<tr>
<td>3Chemistry 310-319 and Biochemistry 310...</td>
<td>7</td>
</tr>
<tr>
<td>4Divisional Distribution Humanities Part I...</td>
<td>3-6</td>
</tr>
<tr>
<td>4Divisional Distribution (C) Social Sciences...</td>
<td>3-6</td>
</tr>
<tr>
<td>4Upper Level Distribution (A) U.S. Studies (B) Foreign Studies or (C) Capstone Experience...</td>
<td>6-9</td>
</tr>
<tr>
<td>3Electives...</td>
<td>3</td>
</tr>
</tbody>
</table>

Total: 92 hours

**Senior**

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Completion of major program and B.A./B.S. requirements or completion of one year at UT-Memphis...</td>
<td></td>
</tr>
</tbody>
</table>

Total: 124 Minimum hours

1Or equivalent honors courses.

2Students who have had considerable background in biology in high school (e.g., two years of biology or an unusual one-year course) and have completed general chemistry may be eligible to go directly into Biology 210 or 220. Consult the coordinator of the biology program for more information. Students must complete at least 8 hours in biological science in their electives to satisfy the requirement for admission to the medical technology course of study.

3This requirement assumes a student has had enough language background in high school to begin an intermediate language sequence at UT-K.

4Math placement depends on high school courses and grades, ACT scores, and BA/BS requirements. A math placement handout is available in the Liberal Arts Advising Center, 220 Ayres Hall. All students must complete the Math Basic Skills requirement as outlined in the Liberal Arts curriculum. Mathematics 115-121 or Mathematics 121-122 are required for pre-medical technology students.

5Students having completed the 350-350 Organic series may substitute it for Biochemistry 310.

**Pre-Pharmacy Programs**

The college offers three programs preparing students for the study of pharmacy at UT-Memphis. The Doctor of Pharmacy (Pharm.D.) degree is conferred by UT-Memphis upon completion of four years of professional studies 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 three-year program prepares students to be admitted to the College of Pharmacy upon completion of 60 hours of a prescribed course of study in the College 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 the professional degree in pharmacy from UT-Memphis, are based upon the program outlined below. In the three-year program, the student must complete at least 93 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 in Memphis. In the four-year program the B.A. or B.S. degree is granted upon completion of 124 or more credit hours while enrolled in the college, including a major of 24 or more hours in addition to the courses outlined below. The requirement for a major is waived for those taking their fourth year at UT-Memphis. Students in either the three- or four-year program must complete the last 50 hours of credit in residence at The University of Tennessee, Knoxville, before enrolling in the College of Pharmacy.

**Pre-Pharmacy Programs**

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3English 101-102; or equivalent...</td>
<td>6</td>
</tr>
<tr>
<td>4Chemistry 123-124...</td>
<td>8</td>
</tr>
<tr>
<td>4Basic Skills Foreign Language (Intermediate Level Sequence)...</td>
<td>6</td>
</tr>
<tr>
<td>2Mathematics...</td>
<td>9-10</td>
</tr>
<tr>
<td>4Sophomore...</td>
<td></td>
</tr>
<tr>
<td>3Chemistry 310-319 and Biochemistry 310...</td>
<td>7</td>
</tr>
<tr>
<td>4Divisional Distribution Humanities Part I...</td>
<td>3-6</td>
</tr>
<tr>
<td>4Divisional Distribution (C) Social Sciences...</td>
<td>3-6</td>
</tr>
<tr>
<td>3Upper Level Distribution (A) U.S. Studies (B) Foreign Studies or (C) Capstone Experience...</td>
<td>6-9</td>
</tr>
<tr>
<td>3Electives...</td>
<td>3</td>
</tr>
</tbody>
</table>

Total: 92 hours

**Senior**

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Completion of major program and B.A./B.S. requirements or completion of one year at UT-Memphis...</td>
<td></td>
</tr>
</tbody>
</table>

Total: 124 Minimum hours

1Or equivalent honors courses.

2Math placement depends on high school courses and grades, ACT scores, and BA/BS requirements. A math placement handout is available in the Liberal Arts Advising Center, 220 Ayres Hall. All students must complete the Math Basic Skills requirement as outlined in the Liberal Arts curriculum. Mathematics 141-142, 121-122 or 151-152 is a prerequisite to Physics. All students must complete the Math Basic Skills requirement as outlined in the Liberal Arts curriculum. Mathematics 141-142, 121-122 or 151-152 is a prerequisite to Physics. All students must complete the Math Basic Skills requirement as outlined in the Liberal Arts curriculum. Mathematics 141-142, 121-122 or 151-152 is a prerequisite to Physics. All students must complete the Math Basic Skills requirement as outlined in the Liberal Arts curriculum. Mathematics 141-142, 121-122 or 151-152 is a prerequisite to Physics. All students must complete the Math Basic Skills requirement as outlined in the Liberal Arts curriculum.
PRE-VETERINARY MEDICINE PROGRAM

The following program is designed for students who wish to pursue a Liberal Arts degree while preparing for the study of Veterinary Medicine. Students in this program must complete at least 93 credit hours while enrolled in the College of Liberal Arts, must satisfy the Basic Skills and Distribution requirements, and must complete the last 30 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 (two semesters) 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, and is subject to the approval of the College of Veterinary Medicine. Admission to and successful completion of this program does not assure admission to the College of Veterinary Medicine.

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>101-122</td>
</tr>
<tr>
<td>Chemistry</td>
<td>120-130</td>
</tr>
<tr>
<td>Biology</td>
<td>110-120 or Zoology 117-127</td>
</tr>
<tr>
<td>Basic Skills (B)</td>
<td>Foreign Language (Intermediate Level Sequence)</td>
</tr>
<tr>
<td>Mathematics</td>
<td>102</td>
</tr>
<tr>
<td>Sophomore</td>
<td>210, 220</td>
</tr>
<tr>
<td>Chemistry</td>
<td>350, 360, 369</td>
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<tr>
<td>Physics</td>
<td>221-222</td>
</tr>
<tr>
<td>Divisional Distribution (A)</td>
<td>Non-U.S. History</td>
</tr>
<tr>
<td>Divisional Distribution (C)</td>
<td>Social Sciences</td>
</tr>
<tr>
<td>Junior</td>
<td>410</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>410</td>
</tr>
<tr>
<td>Divisional Distribution (C)</td>
<td>Social Science</td>
</tr>
<tr>
<td>Divisional Distribution (D)</td>
<td>Humanities Part I and II</td>
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<tr>
<td>Upper Level Distribution</td>
<td>U.S. Studies (B)</td>
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<tr>
<td>Foreign Studies or</td>
<td>Capstone Experience</td>
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<tr>
<td>Total</td>
<td>93-111</td>
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</table>

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior</td>
<td></td>
</tr>
<tr>
<td>Completion of major program and B. A./B. S. requirements or completion of one year at UT</td>
<td>124</td>
</tr>
<tr>
<td>College of Veterinary Medicine</td>
<td></td>
</tr>
</tbody>
</table>

**Math placement depends on high school courses and grades, ACT scores, and BA/BS requirements.** Mathematics 141-142, 121-122, or 151-152 is a prerequisite for Physics. A math placement handout is available in the Liberal Arts Advising Center, 220 Ayres Hall. All students must complete the Math Basic Skills requirement as outlined in the Liberal Arts curriculum.

**This requirement assumes a student has had enough language background in high school to begin an intermediate language sequence at UT.** B. A. students must complete a minimum of 12 credits from at least two areas; B. S. students must complete a minimum of 6 credits from at least two areas for the Social Science requirements.

BA students must complete a minimum of 6 credits from one of the remaining two areas. BS students must complete a minimum of 6 credits in two of the three areas:

- Recommended electives include courses in economics, history, political science, psychology, or sociology. BA students must complete a minimum of 12 credits from at least two areas. BS students must complete a minimum of 6 credits from at least two areas for the Social Science requirement.

**PREPARATION FOR OTHER PROFESSIONS**

**LIBRARY SCIENCE**

Certain courses in the Graduate School of Library and Information Science are open to students in the College of Liberal Arts interested in beginning positions in a library or in preparation for future graduate study in professional librarianship. For further information, 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 in Planning on page 128. Students are accepted into planning from a broad variety of undergraduate backgrounds. Detailed information on the planning profession, admission requirements, and the program of study may be obtained from the Graduate School of Planning.

**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 Liberal Arts and must be recommended for certification by the College of Education. The College of Education is approved by the National Council for Accreditation of Teacher Education (NCATE); recommendation for certification by the college, therefore, in effect certifies the student in 30 states.

For additional information contact Teacher Certification Office, Room 212 Claxon Education Building.

**COURSE LOAD**

The average course load in the college for any semester is 15-16 credit hours. The University defines full-time undergraduate students as those who register for a minimum of 12 hours. The maximum number of hours which may be taken by liberal arts students is 18, exclusive of elective work in music and physical education.

Exceptions to this rule will require approval by the Associate Dean for Student Academic Affairs (220 Ayres).

**LOWER DIVISION - UPPER DIVISION**

Courses numbered at the 100 and 200 levels are considered lower division and are normally taken by students in the freshman and sophomore years. Courses numbered 300 and above are upper division and are designed for students at the junior and senior levels.

**SATISFACTORY/NO CREDIT**

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 prerequisites or corequisites.

2. (The maximum number of S/NC elective hours which may be counted toward graduation is 20, exclusive of courses offered only S/NC, physical education courses, and/or satisfactory hours earned by examination, military service, etc.

3. (A student who desires to take a course S/NC should indicate that intention at the time of registration. A change from S/NC grading to regular grading or from regular grading to S/NC will not be permitted beyond the drop deadlines in each semester.

4. (Exception: Students who register for a course S/NC in a restricted area will be required to change to regular grading when the error is discovered.)

5. (A) A transfer student who has more than 20 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 hours.

6. (A transfer student with S/NC or equivalent credit earned prior to admission to The University of Tennessee, Knoxville, in a course which satisfies a 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 those courses in which the student does well, motivated by intellectual curiosity, to explore subject matter in which performance may be somewhat less outstanding that work in preferred subject fields.

Note: Students planning to seek admission to graduate or professional
schools (especially in the health sciences) should discuss with their advisors possible limitations on exercise of the S/NC option before registering for courses on this basis.

OFF-CAMPUS STUDY
Recognizing that learning is not restricted to formal classroom situations, the college provides for students to earn credit toward graduation for approved off-campus study. Such study may be undertaken only with prior approval of the faculty member and the department concerned. It may include certain kinds of work experiences, community involvements, working in political campaigns, etc. Credit per semester will vary from 1-15 hours. Up to 21 hours of credit earned in this way may be applied toward a degree in the college, although individual departments may limit the number of hours which may be applied toward a specific major.

INDEPENDENT STUDY
Certain educational goals may best be met though independent study done by an individual under the direction of a faculty member. Students who wish to do such independent work should obtain the approval of the faculty members and the departments concerned prior to embarking upon their study. Credit per semester will vary from 1-15 hours. Up to 21 hours of credit earned in this way may be applied toward a degree in the college, although individual departments may limit the number of hours which may be applied toward a specific major.

STUDY ABROAD AND FOREIGN STUDY COURSES
Several opportunities for study abroad are available to students in the college. One avenue is through group programs arranged and supervised by departments of the college on a full-semester or summer term basis. A second is through group programs conducted abroad by other academic institutions in 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 491. 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 1-15 hours in any one department. Up to 21 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.

AFRO-AMERICAN STUDIES
See Cultural Studies.

AMERICAN STUDIES
See Cultural Studies.

ANCIENT MEDITERRANEAN CIVILIZATIONS
See Cultural Studies.

ANTHROPOLOGY

Art

Art 99

Anthropology 110, 120, 130 are prerequisites to a minor in anthropology, which consists of 15 hours of upper division Anthropology courses, chosen in consultation with an Anthropology advisor.

Art Professors:

Associate Professors:

Assistant Professors:
P. Longobardi, M. F. A. Montana State; B. Lyons, M. F. A. Arizona State; D. Wilson, M. F. A. California (San Diego) B. F. A. in Studio Art

The B. F. A. is Studio Art is a professionally oriented degree especially intended for those students planning careers or graduate study in the visual arts. 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 8 semesters. Students are urged to seek departmental advisement each semester to ensure proper scheduling.

Transfer students are advised that a minimum of 21 hours in studio courses, and 6 upper division hours in art history, must be earned at UTK. Grade below "C" in art courses may be applied to the B. F. A. major. A minimum of 40 credit hours, 300 level or above, must be earned prior to graduation.

Students may be accepted into advanced media concentrations in Ceramics, Drawing, Painting, Printmaking, Sculpture, Watercolor, and approved Inter-Area combinations, after passing the appropriate portfolio course.

Basic Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art History 171, 172, 173</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Additional hours</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Studio 101, 102, 103</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Studio 192</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Studio 211 Drawing I; 213 Painting I (or 215 Watercolor I); Sculpture (241 or 243 or 244 or 245 or 246); Printmaking (161 or 262 or 263 or 264)</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>
Dents are advised that courses in Graphic available: Graphic Design or Illustration. Studio Television. Art in fields such as advertising, art education for those persons who wish to teach art in the schools may pursue the B. F. A. in Studio Art and B. S. in Art Education listings in the College of Education. Students electing a joint Art/Art Education degree (B. F. A./B. S.) may take 12 hours in Art Education courses. 

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 6 hours of approved studio courses from Architecture, Art Education, Broadcast Journalism, Computer Science, Vocational Technical Education, Interior Design or Theatre. Students electing a joint Art/Art Education degree (B. F. A./B. S.) may take 12 hours in Art Education courses. 

General Curriculum
English Composition ........................................ 6
Non-U.S. History/Social Science .............................. 6
Natural Science/Mathematics ................................ 6-8
Liberal Arts Non-Art Electives ............................... 14-16

Art Core
Art 171, 172, 173 .............................................. 9
Art History electives .......................................... 6
Art 101, 102, 103 ............................................... 9
Art 192, 211, 213 (or 215) .................................... 9

Total: 30 hours

Design Electives
Art 350 ......................................................... 9
Art 212, 3 hours drawing electives ......................... 3
Art 211 ......................................................... 3
Art 151, 251, 252, 351, 352, 451, 452, 455 in sequence 23
Art 356 ......................................................... 12
Art 456 ......................................................... 12

Total: 45 hours

ILLUSTRATION CONCENTRATION
Art Core
Art 171, 172, 173 .............................................. 9
Art History electives .......................................... 6
Art 101, 102, 103 ............................................... 9
Art 192, 211, 213 (or 215) .................................... 9

Total: 30 hours

Art 350 (Portfolio Review, S/NC) is prerequisite to all upper division courses.

B. A. Majors in Art History
Prerequisite: Art 172, 173, 183 ............................... 9
Major:
Art History courses numbered 200 and above (May include Greek and Roman Art and Archeology, Department of Classics) ................................. 21
Studio courses numbered 200 and above ................. 6
Art 481 ......................................................... 3

Total: 59 hours

Undergraduate work in Art History is enhanced by knowledge of at least one foreign language and by additional studio art experience. Graduate work normally requires reading knowledge of German, French, and any other language appropriate to an area specialization.

Students anticipating possible careers in the museum or gallery field are advised that elective hours in Art 482, Museology II, should be considered.

B. A. Major in Studio
Prerequisite: Art 101, 102, 103 ............................... 6
Art 171 and 6 additional hours of Art History ......... 9
Major:
Studio courses numbered 200 and above, including a minimum of 15 hours in 300-400 level courses ................. 24

Total: 39 hours

In addition to the general B. A. requirements, the following are required for minors:

B. A. Minor in Art History
Prerequisite: Art 172, 173 ...................................... 6
Minor:
Art History courses 200 and above ......................... 15

Total: 21 hours

B. A. Minor in Studio
Prerequisite: Art 101, 102, 103 Studio Fundamentals ... 6
Art 171, 172, 173 Art History (Any two) ................ 6
Minor:
Studio courses which include a minimum of 8 additional upper-division hours. Concentration may be Ceramics, Drawing, Fiber-Fabric, Painting, Watercolor, Printmaking, Sculpture or a combination from these areas ....... 15

Total: 27 hours

PI BETA PHI ARROWMONT SCHOOL OF ARTS AND CRAFTS

Director:
S. J. Blain, M. F. A. Wisconsin.

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 classes through The University of Tennessee. Graduate credit for spring and summer includes: clay, fiber, fabric, metal, wood. A. O. Diefendorf, Ph. D. Washington; B. Silverstein, Ph. D. Purdue; H. A. Peterson, Ph. D. Illinois; Washington; H. L. Luper, Ph. D. Ohio State; P. J. Carney (Head), Ph. D. Iowa; S. Adler, SPEECH PATHOLOGY AUDIOLOGY AND ASIAN STUDIES

Crafts, Gatlinburg, Tennessee. Content from chapters of the Pi Beta Phi Fraternity, alumnae clubs, and individual members. Arrowmont receives financial support. The Gallery and Library are open to invitational, theme or media oriented exhibits. The Gallery presents changing juried, resident accommodations. The Arrowmont Gallery and Library are open to concentrations are Biology 150 or 110-120, or Botany 110-120 or 118-128, or Zoology 117-118, and Chemistry 120-130. Corequisites are Mathematics 151-152 or 141-142 and Physics 221-222 or equivalent. Concentration in Cell Biology consists of Biology 210, 220, 230, Chemistry 350, 360, 369, Biochemistry 410, either Chemistry 310-319 or Biochemistry 419, and 12 hours of upper division courses. Upper division courses must be selected from Biochemistry 419, 420, 430, 440, 452; Botany 310-320, 321, 412, 441, 451; Microbiology 310-319, 400, 410, 419, 430-439, 440-449; Zoology 330-331, 350, 360, 400, 403, 404, 410, 420, 440, 445, 446, 460, 465, 490. Not more than 8 hours may be selected from one department. No more than 3 credits of research courses may be counted toward the major. Concentration in Organismal and Systems Biology consists of Biology 210, 220, 230, Chemistry 350, 360, 369, and 18 hours of upper division courses selected from Biochemistry 310, 419, 420, 452, Botany, any 300- or 400-level courses but not more than one course from 305, 306, or 309; Microbiology, any 300- or 400-level courses; Zoology, any 300- or 400-level courses. Not more than 12 hours may be selected from one department. No more than 3 credits of research courses may be counted toward the major. Concentration in Ecology consists of Biology 201, 220, 230, Chemistry 350, 360, 369, either Geography 343 or 433, and 15 hours of upper division courses selected from either Botany 321 or Zoology 445, Botany 330, 346, 401, 402, 403, 431; Forestry 311, 315-316; Geography 433, 434; Microbiology 470, 479; Wildlife and Fisheries Science 443, 444, 445. Zoology 450, 459, 470. At least 8 hours must be chosen from among the departments of Botany, Microbiology, and Zoology.

A Minor consists of Biology 210, 220, 230 and 8 hours of upper-division courses chosen from the list below. Biochemistry 410-419; Botany, any 300- or 400-level courses; Microbiology, any 300- or 400-level courses; Zoology, any 300- or 400-level courses. (In meeting the upper-division minimum requirement, not more than 6 hours


A B. S. major in Biology may be obtained by completing one of three concentrations: Cell Biology, Organismal and Systems Biology, or Ecology. Prerequisites for all three concentrations are Biology 101-102 or 110-120, or Botany 110-120 or 118-128, or Zoology 117-118, and Chemistry 120-130. Corequisites are Mathematics 151-152 or 141-142 and Physics 221-222 or equivalent. Concentration in Cell Biology consists of Biology 210, 220, 230, Chemistry 350, 360, 369, Biochemistry 410, either Chemistry 310-319 or Biochemistry 419, and 12 hours of upper division courses. Upper division courses must be selected from Biochemistry 419, 420, 430, 440, 452; Botany 310-320, 321, 412, 441, 451; Microbiology 310-319, 400, 410, 419, 430-439, 440-449; Zoology 330-331, 350, 360, 400, 403, 404, 410, 420, 440, 445, 446, 460, 465, 490. Not more than 8 hours may be selected from one department. No more than 3 credits of research courses may be counted toward the major. Concentration in Organismal and Systems Biology consists of Biology 210, 220, 230, Chemistry 350, 360, 369, and 18 hours of upper division courses selected from Biochemistry 310, 419, 420, 452, Botany, any 300- or 400-level courses but not more than one course from 305, 306, or 309; Microbiology, any 300- or 400-level courses; Zoology, any 300- or 400-level courses. Not more than 12 hours may be selected from one department. No more than 3 credits of research courses may be counted toward the major. Concentration in Ecology consists of Biology 201, 220, 230, Chemistry 350, 360, 369, either Geography 343 or 433, and 15 hours of upper division courses selected from either Botany 321 or Zoology 445, Botany 330, 346, 401, 402, 403, 431; Forestry 311, 315-316; Geography 433, 434; Microbiology 470, 479; Wildlife and Fisheries Science 443, 444, 445. Zoology 450, 459, 470. At least 8 hours must be chosen from among the departments of Botany, Microbiology, and Zoology.

A Minor consists of Biology 210, 220, 230 and 8 hours of upper-division courses chosen from the list below. Biochemistry 410-419; Botany, any 300- or 400-level courses; Microbiology, any 300- or 400-level courses; Zoology, any 300- or 400-level courses. (In meeting the upper-division minimum requirement, not more than 6 hours

BIOLOGY CONSORTIUM

Director, R. W. Beck, Ph. D. Microbiology.

Basic Faculty:
may be credited from any one biological science department, and not more than 3 hours of research courses may be credited.) Prerequisites to the minor are introductory biology courses (Biology 110-120 or Botany 118-128 or Zoology 117-118) and Chemistry 120-130.

**BOTANY**

**Professors:**
K. W. Hughes (Head), Ph. D. Utah; J. D. Cipolloni, Ph. D. Harvard; E. E. Clebsch, Ph. D. Duke; H. R. DeSelms, Ph. D. Ohio State; A. M. Evans, Ph. D. Michigan; W. R. Herndon (Alumni Distinguished Service Professor), Ph. D. Vanderbilt; L. G. Hickok, Ph. D. Massachusetts; R. W. Holton, Ph. D. Michigan; L. W. Jones, Ph. D. Texas; J. F. McCormick, Ph. D. Emory; F. H. Norris (Emeritus), Ph. D. Ohio State; R. H. Petersen (Distinguished Professor), Ph. D. (Columbia); A. J. Sharp (Emeritus), Ph. D. Ohio State; W. O. Smith, Ph. D. Duke; P. L. Walne (Benwood Distinguished Professor), Ph. D. Texas.

**Associate Professors:**
C. C. Amundson, Ph. D. Colorado; A. A. Heilman, Ph. D. Ohio State; R. R. Henke, Ph. D. Miami (Ohio); B. C. Mullin, Ph. D. North Carolina State; E. E. Schilling, Ph. D. Indiana; O. J. Schwarz, Ph. D. North Carolina State.

**Assistant Professor:**
B. E. Wofford (Curator), Ph. D. Tennessee.

**Lecturer:**
K. D. McFarland, M. S. Ohio University.

**A B.S. major in Botany** may be obtained by completing one of the three concentrations: General Program, Organismal Botany, or Cellular and Molecular Botany. Prerequisites for all three concentrations are: Botany 110-120 or 118-128 (recommended), or Biology 110, 120 and Chemistry 120-130. Corequisites to the General Program is one of the following sequences: Mathematics 115-121 or 141-142 or 151-152, or Physics 121-122, or Geology 101-102, or Chemistry 350-360-369. Corequisites for both of the other concentrations are: Mathematics 141-142 or 151-152; Physics 121-122 or Geology 101-102; and Chemistry 350-360-369 (Health Science Organic Chemistry Package may be substituted in the Organismal Concentration).

**General Program** requirements are: 2 courses from Biology 210-220-230; Botany 310, 320, 321, 330, 1 hour of 371, 1 hour from 341-442/4; 2 hours of additional Botany; and 3 hours of upper division non-Botany courses selected from Biochemistry, Microbiology, or Zoology. A minimum of 29 hours completes this major's option.

**Concentration in Cellular and Molecular Botany** requirements are: Biology 210, 220; Botany 321, 310, 320, 330, or 451, 1 hour of 371, 2 hours from 400 or 441-442; Biochemistry 410; and 3 additional hours selected from Botany 305, 306, 309 (does not meet this requirement); Biology 230 is recommended for fulfilling this requirement; or upper division Biochemistry, Microbiology, Zoology. A minimum of 38 hours completes this major's option (includes 8 hours of Organic Chemistry).

**Minor** consists of 2 courses from Biology 210, 220, 230, 1 hour of Botany 371, and 6 hours of upper-division Botany (not more than one course from 305, 306, 309) and 3 additional hours of upper-division Botany or related Biological sciences. Prerequisite to the minor is Botany 110, 120, or 118, 128 (recommended) or Biology 110, 120.

**CHEMISTRY**

**Professors:**
G. Pamantov (Head and Alumni Distinguished Service Professor), Ph. D. Louisiana State; J. E. Bloor, Ph. D. Manchester (England); N. S. Bowman (Emeritus), Ph. D. Princeton; W. E. Bull, Ph. D. Illinois; J. Q. Chambers, Ph. D. Kansas; J. A. Dean (Emeritus), Ph. D. Michigan; J. F. Eastham, Ph. D. California (Berkeley); W. H. Fletcher (Emeritus), Ph. D. Minnesota; F. A. Grimm, Ph. D. Cornell; G. A. Guiochon (Distinguished Scientist, Science Alliance Center of Excellence), Ph. D. Universite de Paris (France); G. W. Kabalka, Ph. D. Purdue; D. C. Kleinfelter, Ph. D. Princeton; M. H. Lietzke, Ph. D. Wisconsin; L. J. Magid (Associate Dean), Ph. D. Tennessee; R. M. Magid, Ph. D. Yale; R. M. Pagni, Ph. D. Wisconsin; J. R. Peterson, Ph. D. California (Berkeley); G. K. Schiwetz (Alumni Distinguished Service Professor), Ph. D. Illinois; W. T. Smith (Emeritus), Ph. D. Ohio State; W. A. Van Hook, Ph. D. Johns Hopkins; E. L. Wehry, Ph. D. Purdue; T. F. Williams (Alumni Distinguished Service Professor), Ph. D. London (England); J. J. Wood (Emeritus), Ph. D. North Carolina; B. Wunderlich (Distinguished Scientist, Science Alliance Center of Excellence), Ph. D. Northwestern.

**Associate Professors:**
J. L. Adcock, Ph. D. Texas; S. D. Alickiokatos, Ph. D. California (Berkeley); J. E. Barmat, Ph. D. Northwestern; K. O. Cook, Ph. D. Wisconsin; J. D. Kovac, Ph. D. Yale; C. A. Lane, Ph. D. California (Berkeley); F. M. Schell, Ph. D. Indiana; M. J. Seaplen, Ph. D. Iowa State; C. Woods, Ill, Ph. D. North Carolina State.

**Assistant Professors:**
C. E. Barnes, Ph. D. Stanford; C. S. Feigerle, Ph. D. Colorado; J. H. Shibata, Ph. D. Washington.

**Bachelor of Science in Chemistry**

Students who desire to major in chemistry may select from either of two courses of study: Bachelor of Science or Bachelor of Science in Chemistry. Only the latter pro-

Total: 124 hours
the Department of Chemistry, 575 Buehler Hall.

The B.S. degree is intended primarily for students who may have career objectives in fields other than chemistry, but in fields where chemistry has direct application such as medicine, dentistry, pharmacy, business, and ecology. The B.S. in Chemistry degree is recommended for students planning a career in chemistry. However, with the proper choice of physics, mathematics, and physical chemistry courses, the regular B.S. program is also suitable for such students.

Prerequisites to the major are Chemistry 120-130 or (preferably) 121-131 or 126-138, Chemistry 140, and Mathematics 141-142 or 151-152. Course work in Chemistry 221-222 or 131-231. The major consists of Chemistry 310, 319, 350-360, 369, 370-380 or 371-381, 379, and 10 hours of additional work in chemistry that includes at least one laboratory course or lecture/laboratory course; up to 6 hours of Biochemistry 410-420 or Geology 460 may be applied to the 10-hour requirement.

For students planning careers in chemistry, the recommended courses (from the list above) are Mathematics 141-142, Physics 131-231, and Chemistry 371-381; although not required, certain additional courses are strongly suggested for students planning to become chemists. Mathematics 241-251 and Chemistry 230, 320, 329, and 406. Because professional chemists need a reading knowledge of foreign languages, intermediate level competency should be acquired in German, Russian or French. Students who are undecided about their career goals should consult a chemistry faculty advisor at the earliest opportunity. Unlike the Bachelor of Science in Chemistry, the B.S. Chemistry degree is not approved by the Committee on Professional Training of the American Chemical Society.

A minor in chemistry shall consist of the successful completion of 15 hours of chemistry courses numbered 100 and above, including 310, 319 (4 hours) and at least one of the following sequences: 350-360, 369 (6 hours); or 370-380, 379 (8 hours); or 371-381, 379 (8 hours).

Cooperative Program

A cooperative program is available to students who are chemistry majors. After the freshman year, the student alternates a semester in school with a semester in a job in the chemical industry. The program normally requires five years and involves a total of four work semesters and eight school semesters. Students are required to have at least a 2.5 average to enter and remain in the program. Some opportunity exists for students to enter the program later than the end of the freshman year. Interested students should make application to the head of the department at least one semester in advance of the beginning of the first work period. Further information will be supplied on request.

Placement in General Chemistry Sequences

The sequences which meet all requirements of a year of general chemistry and which serve as prerequisites for upper-division courses are 120-130, 121-131, and 128-138; chemistry majors are strongly encouraged to take either of the latter sequences. Courses 100 and 110 emphasize organic and biochemistry, and may be used as prerequisites only for 431.

It is possible to move from one sequence to another if permission for substitution is obtained in advance. For example, a student who finds a need to complete the 120-130 series after having completed 100 may substitute 100 for 120 with approval of the Department of Chemistry and may then take 130. Credit may be received for only one of the courses 100, 120, 121, or 128.

In any chemistry course above the freshman level which has Chemistry 130 as a prerequisite, 110 may be used as a prerequisite with approval of the Department of Chemistry.

Chemistry 128-138 is an honors course designed for the student who has already made considerable progress in science. Class size is 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 Chemistry 128-138 is an honors course.

Beginning students who have had high school chemistry and who have had additional experience (e.g. summer institute study, special research projects, home laboratory) are invited to apply during the summer to the head of the department for permission to take a proficiency examination in one or more semesters of general chemistry. If a satisfactory grade is made on the examination, credit will be awarded for the semester (or course) for which the exam was taken. The Department of Chemistry gives credit in general chemistry to students who present satisfactory scores on the Chemistry Advanced Placement Examination.

**CHINESE**

See Cultural Studies (Asian Studies).

**CLASSICS**

Professors:

H. C. Rutledge (Head), Ph.D. Ohio State;
G. C. Gesell, Ph.D. North Carolina (Chapel Hill).

Associate Professors:

C. P. Craig, Ph.D. North Carolina (Chapel Hill);
S. D. Martin, Ph.D. Michigan;
J. E. Shelton, Ph.D. Vanderbilt; D. W. Tandy, Ph.D. Yale.

**The B.A. major concentration in Greek** consists of 27 hours including 21 hours of Greek language courses numbered above 200, and including 3 hours of Classics 422 (capstone); 6 hours chosen from Classics 221-222, 331, 334, 491. The student majoring in Latin is strongly encouraged to have as background History 310 before taking the capstone course. The student concentrating in Latin is encouraged to begin or take advanced work in Greek.

The Latin minor consists of 18 hours including 12 hours of Latin language courses numbered above 200, and 6 hours chosen from Classics 221-222, 331, 334. The student minoring in Latin is encouraged to take Classics 422 (capstone).

**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 freshman orientation a placement test will be given, and students will be advised if a change in registration is suggested by the results.

**Proficiency Examinations**. Students who have acquired a knowledge of Latin through private study or tutoring should request from the Department 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 courses in a sequence may receive credit for it by passing the appropriate proficiency examination.

**COMPARATIVE LITERATURE**

See Cultural Studies.

**COMPUTER SCIENCE**

Professors:

J. H. Poore (Head), Ph.D. Georgia Tech;
R. C. Gonzalez (ECE), Ph.D. Florida;
G. R. Sherrman, Ph.D. Purdue;
M. G. Thomason, Ph.D. Duke.

Associate Professors:

J. D. Case, Ph.D. Illinois; B. W. Char, Ph.D. Berkeley; B. J. MacLennan, Ph.D. Purdue;
C. P. Pfeiffer, Ph.D. Pennsylvania State.

Assistant Professors:

J. R. Blair, Ph.D. Pittsburgh; M. D. Vose, Ph.D. Texas; D. C. Mutchler, Ph.D. Duke;
D. W. Sراف, Ph.D. Texas; M. Zemankova, Ph.D. Florida State.

The undergraduate major in computer science contains five areas of concentration:

- Computer Systems, Information Systems, Scientific Computing, Theory of Computation, and Machine Intelligence. Some courses are applicable to more than one

- Upper Division. The New Testament Option in second year Greek is 261-262.

- The Greek minor consists of 18 hours including 12 hours of Greek language courses numbered above 200, and 6 hours chosen from Classics 221-222, 331, 334. The student minoring in Greek is encouraged to take Classics 422 (capstone).

- The B.A. major concentration in Latin consists of 27 hours including 21 hours of Latin language courses numbered above 200, and including 3 hours of Classics 422 (capstone); 6 hours chosen from Classics 221-222, 331, 334, 491. The student majoring in Latin is strongly encouraged to have as background History 310 before taking the capstone course. The student concentrating in Latin is encouraged to begin or take advanced work in Greek.

- The Latin minor consists of 18 hours including 12 hours of Latin language courses numbered above 200, and 6 hours chosen from Classics 221-222, 331, 334. The student minoring in Latin is encouraged to take Classics 422 (capstone).

- 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 freshman orientation 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 from the Department 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 courses in a sequence may receive credit for it by passing the appropriate proficiency examination.
CULTURAL STUDIES

Director: Jack Armistead (College of Liberal Arts)

In keeping with the philosophy that integration of knowledge is as important as proficiency in a given field, the College of Liberal Arts has joined the resources of several departments to offer a series of interdisciplinary majors and minors. These Cultural Studies programs are as follows:

AFRO-AMERICAN STUDIES

Director: Dr. Cynthia G. Fleming (History and Afro-American Studies)

Assistant Professor: Dr. Margaret P. Hartsell

The Afro-American Studies Program offers both a major concentration and a minor in Afro-American Studies. AAS courses are offered not only by the program itself but also by numerous departments within the College of Liberal Arts and some other colleges as well. This diversified sponsorship of AAS courses enables the University to offer a particularly varied range of courses in the field of Afro-American Studies.

Major concentration: Afro-American Studies 201-202 are required in the concentration which consists of 24 hours from the Afro-American Studies curriculum. At least 15 hours must represent upper division credits. Majors are required to take AAS 431, preferably in their senior year. A maximum of 6 hours in AAS 492 and 493 combined can be applied toward the AAS major. In planning their program majors must include courses from at least 2 other departments which crosslist courses with Afro-American Studies in addition to the AAS core course offerings.

Minor: Afro-American Studies 201-202 are required in the minor which consists of 15 hours at least 9 of which must be upper division credits. A maximum of 3 hours in AAS 492 and 493 combined can be applied to a minor. In planning their programs minors must include courses from at least 2 other departments which crosslist courses with Afro-American Studies in addition to the AAS core course offerings.

AMERICAN STUDIES

Chair: Dr. George B. Hutchinson (English)

Major concentration: History 251-252 (or equivalent honors courses) are prerequisite to the major concentration in American Studies which consists of 24 semester hours including American Studies 310 and 410; two of the three following courses: English 431, 432, or 433; and 15 hours of upper-division electives dealing with the American experience. Six hours of the electives 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.

ANCIENT MEDITERRANEAN CIVILIZATIONS

Chair: Dr. David W. Tandy (Classics)

Co-chair: Dr. W. L. Humphreys (Religious Studies)

The major concentration in Ancient Mediterranean Civilizations consists of Classics 381 and 382, History 366, and 18 additional hours from the following list, distributed in an approved manner: (a) Ancient Near Eastern Cultures: Religious Studies 311, 312, 326; (b) Greek Culture: Classics 221, 222, 232, 233, 253, 331, 334, 383; History 310; Philosophy 120, 320; Political Science 475; Religious Studies 321, 322, 326; and (e) Roman Culture: Classics 222, 233, 254, 383, 462; History 311; Philosophy 120, 320; Political Science 475; Religious Studies 321, 322, 326, 416. 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 major concentration in any approved manner.

The major concentration in Ancient Mediterranean Civilizations is approved by the Undergraduate Committee.

ASIAN STUDIES

Chair: Dr. Walter C. Neale (Economics)

The Asian Studies major concentration consists of 27 credit hours from the upper-division courses of Asian Studies and approved departmental offerings. Fifteen 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 9 of those 15 hours can come from one of the following subdivisions (A or B). Subdivision A includes Art, Literature, Music, Philosophy, and Religious Studies; Subdivision B includes Anthropology, Economics, Geography, History, Political Science, and Sociology. Prerequisite to the concentration is Asian Studies 101-102. Corequisite to the major concentration is competence in a major Asian language of the chosen geographical-cultural area. Progression to the major concentration is allowed and reviewed in consultation with the Asian Studies Committee. The successful completion of the 200-level sequence of that language, or by demonstration of equivalent mastery.

The Asian Studies minor consists of Asian Studies 101-102 and 15 credit hours at the 200 level and above from courses listed within one of the four geographical-cultural areas. No more than 9 credit hours can come from one subdivision.

CINEMA STUDIES

Chair: Dr. Charles Maland (English)

The Cinema Studies minor consists of fifteen hours, including English 281 Introduction to the Film Studies, and Art 292 Film Design. It is strongly recommended that Introduction to Film Studies and Film Design be taken before selection of electives provided for in the minor.

For further information consult the chairperson of the Cinema Studies Program,
Latin-American Studies
Chair: Dr. Michael H. Handelsman (Spanish)

The major concentration consists of 27 hours including Latin American Studies 251 and 252, three hours of an approved Spanish or Portuguese literature/culture course at either the 300 or 400 level, and nine additional hours selected from courses offered by three different participating departments. A practical working knowledge of Spanish or Portuguese acquired independently is a prerequisite for majors and minors. All students are strongly encouraged to earn credit hours through UTK's Latin American Studies Abroad Program at the Federal University of Ceara in Fortaleza, Brazil. Other foreign study programs are also available for Brazil and Spanish-speaking Latin America.

For further information, consult with Dr. Michael Handelsman (601 McClung Tower), Chairperson of the Latin American Studies Program.

LINGUISTICS
Chair: Dr. Bethany K. Dumas (English)

This major concentration offers a broad exposure to the various fields of linguistics (including historical, descriptive, theoretical, and applied linguistics) along with an opportunity to study areas where linguistics overlaps with other disciplines such as psycholinguistics, sociolinguistics, and speech pathology. The program of study 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. The program of study provides the additional possibility of emphasizing the teaching of English as a second language for the student interested in language-related employment at the B. A. level.

Students should consult program advisors early in planning a Linguistics major or minor. Audiology and Speech Pathology 305 should be taken as soon as possible. Other 300-level courses should, if possible, be completed before 400-level courses are begun.

Corequisites for the major concentration are Linguistics 200 (highly recommended); selection of the Foreign Studies option to fulfill the upper-level distribution requirement (required); and a two-semester sequence of a non-Indo-European language to be selected from the following: Asian Studies 121-122 (5,5) (Arabic); Asian Studies 131-132 (5,5) (Chinese); Asian Studies 141-142 (4,4) (Hebrew); Asian Studies 151-152 (5,5) (Japanese); Religious Studies 309-310 (3,3) (Hebrew); other non-Indo-European language sequences approved by the Linguistics Committee (required).

The concentration shall consist of 30 hours distributed as follows: (a) 24 hours composed of Audiology and Speech Pathology 305 (3); English 371, 372, and 471 (3,3,3); French, German, Russian or Spanish 425-426 (3,3); and Linguistics 420-430 (3,3); and (b) 6 hours of the following, selected in consultation with the Linguistics Committee: Anthropology 411 (3); Audiology and Speech Pathology 320, 465, 579, (3,3,3); Educational Curriculum and Instruction 457 (3); Special Education and Rehabilitation 522 (5,3); 532-533 (3,3); English 371, 372, 472, 475, 486, 508-509, 680 (3 hours each); French 421, 422, 521-522 (3 hours each); German 435-436 (3,3), 571-572 (3,3); Linguistics 400 (3); Philosophy 479 (3); Psychology 450, 482, 543, (3 hours each); Spanish 421, 422, 531-532 (2,3,3,3); Theatre 246 (4).

Other hours may be substituted in (b) by approval of the Linguistics Committee.

A minor in Linguistics shall consist of 18 credit hours composed of (1) either English 471 (3) or 3 hours from section (b) of the major, selected in consultation with the Linguistics Committee; and (2) 15 hours as follows: Audiology and Speech Pathology 305 (3); English 371 (3) or 372 (3); French, German, Russian or Spanish 425 (3) or 426 (3); and Linguistics 420-430 (3,3).

Note: In addition to the above listed courses for the concentration and the minor there are occasional offerings in the Honors Series or in graduate seminars which may be substituted for certain requirements subject to written approval of the Linguistics Committee and the Office of the Dean.

Medieval Studies
Chair: Dr. Paul Barrette (French)

A major concentration in Medieval Studies consists of Medieval Studies 201 and 403 and 21 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. Courses should not be selected at random but should either form a related pattern (for example, courses in the literature and history of Medieval England or Italy, etc.), or should revolve around a particular discipline or two closely related disciplines (for example, courses in the history of art and architecture).

A 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.

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 supplement their Medieval Studies concentration with extensive work in one of the traditional disciplines.

A minor in Medieval Studies consists of Medieval Studies 201 and 403 and 12 additional hours distributed among the categories listed above for the major. Each student's program, major or minor, must be approved in advance by the Medieval Studies Coordinating Committee, chairperson Dr. Paul Barrette.

Category #1 History, Philosophy, and Political Science: History 312 Medieval History: 300-1100 (3); History 313 Medieval History: 1100-1400 (3); History 330 History of England to 1868 (3); History 334 History of Germany to 1815 (3); History 369 History of the Middle East (3); History 474 Studies in Medieval and Early European History (3); Philosophy 322 Medieval Philosophy (3);
Women's Studies encourages inquiry into the full range of the human experiences by raising new questions and opening new areas of research concerning women. The discipline enriches the traditional liberal arts curriculum by adding new perspectives on women's lives and accomplishments. Women's Studies can broaden the education of both male and female students by helping them to understand the limitations placed on both sexes by narrowly defined sex roles. Wherever there is a need to understand women and an interest in the new role they are playing in society, Women's Studies can enhance a student's career preparation and opportunities.

The Women's Studies Program offers a wide variety of coursework, some interdisciplinary in nature and others originating in supporting departments throughout the university. These courses may be taken as electives, they may be used to satisfy requirements in various courses, or they may serve as a concentration in Women's Studies within a Cultural Studies major or minor.

The major concentration in Women's Studies consists of 30 semester hours including one of the Images of Women in Literature courses (either 210 or 215), Women in Society (220), Emergence of the Modern American Woman (410), at least three hours of Independent Study (493), and at least one course from each of the three major areas: Women's Heritage (324, 380, 383, 432, 453, 486, 483), Contemporary Issues (375, 382, 410, 425, 434), and Literature and the Arts (330, 332, 422). As its content varies, 400 hours in one of these areas. Students are encouraged to take at least nine hours in one of these areas.

The Women's Studies minor consists of one of the Images of Women in Literature courses (either 210 or 215), Women in Society (220), and an additional 12 hours of upper-division Women's Studies courses. Approved special topics courses related to Women's Studies may also be applied toward a major or a minor.

**ECOLOGY**

Dewey L. Bunting, Director

Basic Faculty:


The Graduate Program in Ecology offers Master's 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, social sciences, mathematics, and engineering. Research opportunities in both fundamental and applied ecology are intended to prepare students for academic careers as well as professional positions in industry or government. The Environmental Sciences Division of the Oak Ridge National Laboratory, the National Park Service, and the Tennessee Valley Authority provide advisors 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 consequential biological diversity that is truly unique. In addition, faculty research programs provide opportunities for student research elsewhere on this continent and abroad.

Application forms for admission should be obtained from the Graduate School. Inquiries concerning the admission requirements should be addressed to the Director, Graduate Program in Ecology, University of Tennessee, Knoxville, Tennessee, 37996-1610. Consult the Graduate Catalog for listing of graduate level courses.

**ECONOMICS**

See faculty list, page 57.

The program in economics combines a broad liberal education with the rigorous study of current issues of the day such as employment, inflation, interest rates, and the benefits and costs of economic growth.

Courses offered in the Department of Economics of the College of business Administration provide opportunity for a major or minor in economics in the College of Liberal Arts.

Requirements for a B. A. major in economics consist of: (1) Economics 201 or equivalent honors level course, (2) Economics 311 and 312 plus 21 additional hours in upper division economics courses. Majors are encouraged to take a course in the Music to 1750 (3).
to satisfy Part II of the Natural Science requirements in accordance with one of the mathematics packages Mathematics 115-121, 121-122, or 141-142. Students planning to graduate work in Economics should elect Mathematics 141-142.

An English minor consists of at least 15 semester hours of English courses at the 300-400 level.

Certification for Teaching Students planning to teach English in public schools should consult the Certification Clerk, Room 212, Claxton Education Building.

Graduate Study. Students wishing to enter a graduate program in English should address inquiries to the Dean of the Graduate School. To be accepted for graduate study in English, the student should in general have had at least eighteen semester hours in English courses above the freshman and sophomore levels with a better than B average. Eighteen semester hours of English courses are required for a certificate in English.

Minor: Geography 101-102, or the equivalents, are prerequisites to all English courses at the 200, 300, and 400 levels; and (2) as a graduation requirement for a B.A., each English major must complete the equivalent of the second year of a foreign language, maintaining a grade average of C in the courses used to fulfill this requirement (D's in some of these courses may be counted if the overall average is a C or better and the student earns less than a C average, he or she must repeat courses and/or petition the department for a waiver.

Major Requirements: At least 36 semester hours of course work in the English Department, 30 of which must be at the 300 or 400 level.

For all English Majors: (1) English 201-202 (British Literature); 201-222 (Literature of the Western World), or any two of 231-232-233 (American Literature). This requirement should be satisfied, if possible, before the student takes courses at the 300-400 level; and (2) English 371 or 372 (study of the English language).

Concentration in Literature: Nine English courses at the 300-400 level, including: (1) English 376 (Colloquium in Literature), to be taken, if possible, near the beginning of the student's major program; (2) at least four courses in literature before 1900, including at least two before 1900 (see departmental brochure, Undergraduate Study in English, for a course list); and (3) four other courses; at least one of which is based on an approach to literature other than literary history (see departmental brochure, Undergraduate Study in English, for a course list).

Concentration in Writing: Nine English courses at the 300-400 level, including: (1) a two-course sequence in expository, technical, or creative writing; (2) three other courses in writing; and (3) four other courses, at least three of which must be literature courses selected in consultation with the advisor.

Individualized Program The Director of Undergraduate Studies is empowered to approve individualized programs developed by students in consultation with their advisors. These programs should be designed to achieve academically sound objectives that are not addressed by the above requirements.

Honors For students who qualify, the English Department offers specially designed courses at the freshman, sophomore, junior and senior levels. The freshman and sophomore honors courses are enriched versions of regular sections in composition, in introduction to the various genres, and in American, British, and world literatures. To be given "Honors" in English on the transcript, a student must have achieved a 3.0 or better GPA, a 3.5 or better grade point in English scores, and grades of A or B in English 398 and 498.

An English minor consists of at least 15 semester hours of English courses at the 300-400 level.

Certification for Teaching Students planning to teach English in public schools should consult the Certification Clerk, Room 212, Claxton Education Building.

Graduate Study. Students wishing to enter a graduate program in English should address inquiries to the Dean of the Graduate School. To be accepted for graduate study in English, the student should in general have had at least eighteen semester hours in English courses above the freshman and sophomore levels with a better than B average. Eighteen semester hours of English courses are required for a certificate in English.

Minor: Geography 101-102 are recommended as an introduction to the minor,
which consists of Geography 310, 320, 330, and 340, and six additional hours of upper-division work in geography, including at least three hours at the 400 level.

1Students who have successfully completed Geography 131-132 are considered to have satisfied this course requirement in the geography major or minor.

GEOLOGICAL SCIENCES

Professors:
H. Y. MoSwee (Head), Ph. D. Harvard; R. D. Hatcher (UTK/ORNL Distinguished Scientist), Ph. D. Tennessee; H. J. Klepsner (Emeritus), Ph. D. Ohio State; D. C. Kopp, Ph. D. Columbia; K. C. Misra, Ph. D. Western Ontario; R. E. McLaughlin (Emeritus), Ph. D. Tennessee; L. A. Taylor, Ph. D. Lehigh; K. R. Walker (Carden Professor), Ph. D. Yale; J. G. Waits (Emeritus), Ph. D. North Carolina.

Associate Professors:
D. W. Byerly, Ph. D. Tennessee; T. W. Broadway, Ph. D. Iowa; M. Clark, Ph. D. Pennsylvania State; P. A. Delcourt, Ph. D. Minnesota; S. G. Dieste, Ph. D. Wisconsin; W. M. Dunne, Ph. D. Bristol; T. C. Labotka, Ph. D. Caltech; R. T. Williams, Ph. D. V. P. I.

Assistant Professor:
W. M. Dunne, Ph. D. Bristol.

Prerequisites to a B. S. major are: Geology 101-102; Chemistry 120-130; Mathematics 141-142; three semesters from Physics 131-132; Biology 110-120. This requirement includes a two semester sequence in one area plus a single semester in the other; the single semester may be satisfied by high school course work in that area.

Major requirement consists of: Geology 310, 320, 330, 340, 370 (16 hours); 3 courses from: Geology 410, 420, 440, 450, 460, 470, 480; and 6 hours of geology courses numbered 300 or above. Geology 440 (field camp) is strongly recommended for students planning a career in geology.

Minor requirement consists of: Geology 101-102. Geology courses: at least 16 hours of courses numbered 200 or higher.

GERMANIC AND SLAVIC LANGUAGES

Professors:
J. E. Failen, Ph. D. Pennsylvania; D. M. Fiene, Ph. D. Indiana; H. W. Fuller (Emeritus), Ph. D. Wisconsin; H. Kratz, Ph. D. Ohio State; Ph. D. Cornell; J. C. Osborne, Ph. D. Northwestern; M. P. Rice, Ph. D. Vanderbilt; U. C. Ritzenhoff, Ph. D. Connecticut.

Associate Professors:
D. M. Fiene, Ph. D. Indiana; C. Hodges, Ph. D. Chicago; N. A. Lauckner, Ph. D. Wisconsin; D. E. Lee (Head), Ph. D. Stanford; C. J. Mellor, Ph. D. Chicago; U. C. Ritzenhoff, Ph. D. Connecticut.

Assistant Professor:
J. Kolodziej, Ph. D. Indiana.

Instructors:
M. H. Harris, M. A. Illinois; A. Rashkovsky, M. A. Tartu.

Placement Examination. Students who have had previous work in German or Russian either as high school or at another college should take a placement test to determine what level course they should elect. Placement tests are given for incoming freshmen during orientation in the summer, and also the first week of each semester.

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 an appropriate number of courses. Superior students are encouraged to proceed as rapidly as their achievement permits. Students who omit any course in a sequence may receive credit for it by passing a proficiency examination.

Foreign Study. Students are encouraged to study abroad, particularly through participation in the University’s International Student Exchange Program (ISEP). The department is also prepared to recommend summer study programs and year abroad programs for students who are interested in foreign study. Credits from recognized foreign study programs can readily be transferred to UTK. For qualified students, the department also offers German 491 Foreign Study and Russian 491 Foreign Study. Students should consult the department before registering for the foreign study course.

B. A. Major in German. Majors or minors in German should carefully prepare their programs in consultation with a departmental faculty advisor. German 201-202 or the equivalent is a prerequisite to the major. The major shall consist of at least 24 hours of German in courses numbered above 300, including German 363 and usually including German 301-302. Courses in English translation or German 331-332 do not count toward the major. In order to graduate, majors will be required to take a proficiency test in German. It is recommended that German majors also take History 151-152 or 334-335 and 6 hours of 200 level English courses. Majors are also strongly urged to consider a minor in some other area of the humanities.

Minor in German. German 201-202 or its equivalent is a prerequisite to the minor. The minor shall consist of at least 18 hours of German courses numbered above 300, which normally include German 301-302 and 12 additional hours of courses numbered above 300 (excluding 331-332 and courses in English translation).

B. A. Major in Russian. Russian 201-202 is a prerequisite to the major. Russian majors should prepare their programs in consultation with the departmental faculty advisor. The major in Russian shall consist of at least 30 hours of Russian courses, including Russian 301-302, 311-312, 411-412, 420-421, 422-423, and 6 hours from Russian 221, 222, 226, 321, 322, 326, 371, 372, or other courses numbered above 400. It is recommended that majors also take Russian History 340-341 and 6 hours of sophomore English. Majors are urged to consider a minor in some other area of the humanities.

Minor in Russian. Russian 201-202 is a prerequisite to the minor. The minor in Russian shall consist of at least 18 hours of Russian courses, including Russian 301-302, 311-312, and 6 hours from Russian 221-222 or other Russian courses numbered above 300.

GREEK

See Classics.

HEBREW

See Religious Studies.

HISTORY

Professors:
P. H. Bergeron, Ph. D. Vanderbilit; E. V. Chmielewski, Ph. D. Harvard; R. E. Duncan, Ph. D. California (Berkeley); J. R. Finger, Ph. D. Washington; L. P. Graf (Benwood Distinguished Service Professor and Emeritus), Ph. D. Tennessee; L. A. Taylor, Ph. D. Chicago; R. T. Williams, Ph. D. North Carolina; J. C. Brey, Ph. D. Michigan; C. D. Matson, Ph. D. Columbia.

Associate Professors:
S. D. Becker, Ph. D. Case Western Reserve; J. D. Bing, Ph. D. Indiana; J. Bohstedt, Ph. D. Harvard; C. W. Johnson, Ph. D. Michigan; C. G. Fleming, Ph. D. Duke; J. Muldowy (Acting Head), Ph. D. Yale; P. J. Pinkney, Ph. D. Vanderbilit; E. H. Trainer, Ph. D. Emory; J. G. Utley, Ph. D. Illinois.

Assistant Professors:
P. H. Brummett, Ph. D. Chicago; W. W. Farris, Ph. D. Harvard; C. L. Lansing, Ph. D. Emory; M. Klein (Alumni Distinguished Service Professor, Lindsay Young Professor and Emeritus), Ph. D. Princeton; M. J. McDonald, Ph. D. Pennsylvania; L. A. Ratner (Dean, Liberal Arts), Ph. D. Cornell; W. B. Wheeler, Ph. D. Virginia.

The department's program is designed to provide students with a knowledge of their cultural traditions and of their world, past and present, and thus to prepare them for the responsibilities of citizenship in today's complex society. Students take history courses to develop their skills in thinking, reading, writing and speaking; to understand the links between past, present and future; and to assist them in their search for personal identity.

B. A. Major. Majors in history should prepare their programs in consultation with a departmental faculty advisor. History 151-152 or 334-335 and 6 hours of 200 level English courses. Majors are also strongly urged to consider a minor in some other area of the humanities.

Minor in Russian. Russian 201-202 is a prerequisite to the minor. The minor in Russian shall consist of at least 18 hours of Russian courses, including Russian 301-302, 311-312, and 6 hours from Russian 221-222 or other Russian courses numbered above 300.
ITALIAN
See Romance Languages.

JAPANESE
See Cultural Studies (Asian Studies).

LATIN
See Classics.

LATIN AMERICAN STUDIES
See Cultural Studies.

LINGUISTICS
See Cultural Studies.

MATHEMATICS
Professors:
J. S. Bradley (Head), Ph. D. Iowa; G. E. Albert (Emeritus), Ph. D. Wisconsin, D. F. Anderson, Ph. D. Chicago; G. A. Baker, Ph. D. Cornell; J. H. Carruth, Ph. D. Louisiana State; C. E. Clark, Ph. D. Louisiana State; R. J. Daverman, Ph. D. Wisconsin; D. J. Dessart, Ph. D. Maryland; D. E. Obbys, Ph. D. Cornell; E. D. Eaves (Emeritus), Ph. D. Texas; H. Friedson, Ph. D. Illinois; T. G. Hallam, Ph. D. Missouri; D. B. Hinton, Ph. D. Tennessee; A. S. Householder (Emeritus), Ph. D. Chicago; L. S. Husch, Ph. D. Florida State; K. Johannson, Ph. D. Bielefeld, West Germany; G. S. Jordan, Ph. D. Wisconsin; B. A. Kupershmidt (Space Institute, Tullahoma), Ph. D. Massachusetts Institute Technology; H. T. Mathews, Ph. D. Tulane; R. M. McConnel, Ph. D. Duke;

D. D. Miller (Emeritus), Ph. D. Michigan; B. S. Rajput, Ph. D. Illinois; C. K. Reddy (Space Institute, Tullahoma), Ph. D. Indian Institute of Technology; P. W. Schaster, Ph. D. Maryland; S. M. Serbin, Ph. D. Cornell; F. W. Stallmann (Emeritus), Ph. D. Giessen (Germany); K. R. Stephenson, Ph. D. Wisconsin; E. Wachspres, Ph. D. Rensselaer Polytechnic Institute; W. R. Wade, Ph. D. California (Riverside); C. G. Wagner, Ph. D. Duke; J. J. Walsh, Ph. D. SUNY (Binghamton); S. Richter, Ph. D. Michigan

Associate Professors:
V. Alexiades, Ph. D. Delaware; N. Alikakos, Ph. D. Brown; J. Dydak, Ph. D. Warsaw (Poland); L. T. Gross, Ph. D. Cornell; O. Karakashian, Ph. D. Harvard; K. R. Kimble (Space Institute, Tullahoma), Ph. D. Ohio State; V. Kuo, Ph. D. Connecticut; S. Lanthorn, Ph. D. Kentuck; J. Rosinski, Ph. D. Wrocław University; W. H. Row, Jr., Ph. D. Wisconsin, H. Simpson, Ph. D. California Institute of Technology; J. Smith, Ph. D. California (Berkeley); B. K. Soni (Space Institute, Tullahoma), Ph. D. Texas; R. P. Soni, Ph. D. Oregon State; C. Sundberg, Ph. D. Wisconsin.

Assistant Professors:
L. Bales, Ph. D. Cornell; J. A. Haeffner, Ph. D. Wisconsin; M. Kot, Ph. D. Arizona; S. Mulay, Ph. D. Purdue; B. K. Soni (Space Institute, Tullahoma), R. Svirsky, Ph. D. John Hopkins

Instructor:
C. G. Doss, M. A. Tennessee.

B. S. Major: Mathematics 141-142 (or the Honors version, 147-148) is prerequisite to a major in Mathematics. Majors must also have computer programming skills sufficient to take 371; students without other computing experience should take CS101: Computer Science 100, 101, or 102. The courses required for the major are: 221 Discrete Mathematics I (3); 231 Differential Equations I (3); 241 calculus III; or 247 Honors: Calculus III (4); 251 Matrix Algebra I; or 257 Honors: Matrix Algebra I (3); 323 Probability I (3); 341 Analysis I (3); 351 Algebra I (3); 371 Numerical Algorithms I (3); and nine additional hours selected from Mathematics courses numbered 421 through 472.

Honors B. S. Major: Candidates for an honors degree in Mathematics must fulfill all of the requirements for the B. S. degree in Mathematics, but take 12 (rather than 9) hours in Mathematics courses numbered 421 through 472. The grade point average computed on the 24 hours of Mathematics courses consisting of 323, 341, 351, and 371, plus the required 12 hours, will determine the honors category: GPA at least 3.4 - Honors; GPA at least 3.6 - High Honors; GPA at least 3.8 - Highest Honors. Students with credit for more than 12 hours in courses numbered 421 through 472 may designate the 12 hours to be included in the above average.

Minor: Mathematics 141-142 (or 147-148) is prerequisite to a minor in Mathematics. A minor in Mathematics consists of (1) 241 and 251; (2) 221 or 231; and (3) nine additional hours in Mathematics courses numbered 300 or higher. The grade in each of the above courses must be at least C.

MEDIEVAL STUDIES
See Cultural Studies.

MEDICAL BIOLOGY/ MEMORIAL RESEARCH CENTER
The Department of Medical Biology of The University of Tennessee College of Medicine-Knoxville Unit was formed from the faculty of The University Memorial Research Center and Hospital in 1978. The Research Center, founded in 1956, has been developing research interests in cancer, blood diseases, metabolism, neuroscience, birth defects, cytogenetics and clinical genetics. Courses in these areas are offered to students at the graduate and undergraduate levels. Elective courses are also available to students in the College of Medicine.

The faculty with the College of Veterinary Medicine participates in the graduate program leading to M. S. and Ph. D. degrees in Comparative and Experimental Medicine. Other advanced degree students can do thesis research in the department by arrangement with other life science departments at the University.

MICROBIOLOGY
Professors:
Dwayne C. Savage (Head), Ph. D. California (Berkeley); A. Brown, Ph. D. Chicago; R. W. Beck, Ph. D. Wisconsin; J. M. Becker, Ph. D. Cincinnati; D. A. Brian, Ph. D. D. V. M. Michigan State; T. C. Monte, Ph. D. Maryland; W. S. Riggsby, Ph. D. Yale; B. T. Roush, Ph. D. Illinois; B. V. Sc., Bristol (England); G. S. Sayler, Ph. D. Idaho; D. C. White (Distinguished Scientist), M. D. Tutts, Ph. D. Rockefeller; J. M. Woodward (Emeritus), Ph. D. Kansas; C. J. Wust, Ph. D. Indiana.

Associate Professor:
D. Bemis, Ph. D. Cornell; R. N. Moore, Ph. D. Texas (Austin); G. Stacey, Ph. D. Texas (Austin).

Assistant Professors:
J. P. Weir, Ph. D. Vanderbilt.

B. S. Major: Prerequisites are Biology 150 or 110-120, Chemistry 120-130, and Mathematics 151-152 or 141-142. The major consists of Biology 210-220, Chemistry 350-360-369, Biochemistry 410, Microbiology 310, 319, 410, 429, 430, 439 and 8 additional hours of 400-level Microbiology courses, of which at least 1 hour must be a laboratory course.

MEDICAL TECHNOLOGY
Courses in this major are open only to qualified students who have completed the first three years of the Science-Medical Technology Curriculum, described in the College of Liberal Arts curricula section of this catalog, and who have been approved by the Medical Technology Admissions Committee.
MUSIC

Professors:
J. J. Meacham (Head), M. M. Northwestern;
G. C. Bitzas, M. M. Converse; J. P. Brock,
M. M. Alabama; W. J. Carter (Emeritus),
D. M. A. Eastman; J. Coker, M. A. Sam
Houston; F. M. Combs, M. A. Missouri;
G. E. DeVinne, M. M. Chicago; B. H. Schurz
(Chicago); W. J. Dorn, M. A. Columbia;
H. W. Fred, Ph. D. North Carolina;
A. G. Hofford (Emeritus), M. M. Northwestern;
C. R. Huber, Ph. D. North Carolina;
J. A. Lannon, M. A. Michigan;
D. B. Northington, D. M. A. Yale;
D. M. Pederson, Ph. D. Iowa; W. J. Starr
(Emeritus), M. M. Eastman;
D. D. Stutzenberger, D. M. A. Maryland;
D. Van Vactor (Emeritus), M. M. Northwestern.

Associate Professors:
W. Bommelje, M. M. Santa; M. C. Fraley,
B. M. Oberlin Conservatory;
P. M. Horody, M. M. Manhattan School of
Music; D. C. Hoogh, M. M. Tennessee;
D. H. Hough, M. M. Tennessee; J. A. Jacobs,
D. M. A. Texas; A. E. Johnsen, D. M. A.
Stanford; D. K. McClelland, M. A. Columbia;
L. W. Michaelson, M. A. Columbia;
W. P. Scarlett, M. M. Louisiana State;
S. R. Searle, M. M. Tennessee; G. M. Sperl,
M. M. Indiana; J. C. Teachey, D. M. A. Florida
State; S. E. Young, Ph. D. North Carolina.

Assistant Professors:
D. Brown, Memphis State; W. W. Hawthorne,
Ph. D. Cincinnati; C. F. Leach, M. M. New
Mexico; W. S. MacMorrin, M. M. Wisconsin;
E. Schroeder, Ph. D. Stanford; G. M. Sperl,
M. M. Indiana.

Bachelor of Music Degree The Department
of Music offers curricula leading to the
Bachelor of Music degree with concentra-
tions in music theory, composition, electronic
music, music history and literature, and
applied music (voice; piano; organ; sacred
music - organ or piano; sacred music-voice;
piano pedagogy and literature; strings;
woodwind, brass, and percussion instru-
ments; multiple keyboard instruments;
multiple woodwind instruments; studio music
and jazz; studio pedagogy). This study pre-
pares students for graduate music study or
for positions in music for which a profession-
al music degree is required.

The General Education V (6 hours foreign
language requirement) is in addition to the
University admission requirement. Students
may continue at the 200 level in a language
begun in high school or elect to begin a new
language at the 100 level. Students majoring
in vocal performance must complete one
year of each of two languages chosen from
French, German and Italian. Students majoring
in music history and literature must complete
two years of either French or German.
ENSEMBLES

Ensemble participation during each
semester of residence is required of all stu-
dents studying applied music. String,
woodwind, brass, and percussion students
must meet the following ensemble require-
ments: (1) string students must participate in orchestra each semester; (2) woodwind,
brass, and percussion students must acquire
a minimum of four credits in any of the fol-
lowing ensembles: marching band, concert
band, campus band, symphony orchestra,
Jazz ensemble; (3) voice students must
acquire a minimum of four credits in any of
the following ensembles: Concert Choir,
Chamber Singers, University Chorus,
Women's Chorale.

A student's preference for musical organi-
zation will be honored whenever possible,
but factors considered in making the assign-
ment will include playing ability, specific
needs of various organizations, and previous
performance experience at the University.

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 depart-
ment. Students studying 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 reg-
istration or may students elect non-
conventional grades.

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 concur-
rently registered for no less than six credit
hours in academic courses. Graduate stu-
dents must be concurrently registered for
less than three credit hours in academic
courses. Exceptions to these requirements
may be made with the approval of the depart-
ment head if applied music registration is
necessary to completion of degree
requirements.

Advancement in applied music is mea-
sured 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 study faculty.

All students studying applied music at
the principal level are required to register for
Music General 200 Solo Class. The require-
ments for this course are to attend
scheduled concerts, recitals, master, repert-
oire, and solo classes, and to perform at
least one semester as partial
fulfillment of applied music credit require-
ments.

Applied Music Fees: $45 per semester
for half-hour lesson (1 credit hour) $90 per
semester for hour lesson (2-4 credit hours).

Computer registration and applied music
fee payment must be verified at the
Department of Music office no later than the end
of the second day of classes of the fall,
and spring semesters 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.

Bachelor of Arts Degree The Department
of Music offers curricula leading to the Bach-
elor of Arts degree with a major and minor in
Music, designed for those students who
have a strong interest in music, but desire a
comprehensive liberal studies program.

Bachelor of Arts Major in Music Degree
Prerequisites to the major consists of: Music
Theory 110, 120, 130, 140 and Applied
Music at the 100 level. Courses applying to the
major consists of: Music Theory 210, 220,
Music History 200, 210, 220, Applied Study
200 or above, and Music Ensemble, and
one course from: Music History 490, Music
General 301, Music Theory 493 or Music General
511. 3-6 hours of Music electives, Solo class
and prerequisites for a total of 39-44 hours.

Music Minor (a) Concentration in Applied
Music - consists of 17 hours in courses
numbered 200 and above, distributed as fol-
ows: Music History 200, 8 hours in applied
music, and 6 hours in music electives. Pre-
requisites are Music General 100 or
equivalent and two semesters of applied
music study (music performance) at the 103-
190 levels. (b) Concentration in Music History
and Literature - consists of 17 hours in courses
numbered 200 and above, distributed
as follows: Music History 200, 9 hours
in Music History and Literature courses,
and 5 hours in music electives. Prerequisites
are Music General 100 or equivalent and
two semesters of applied music study at the
103-
190 levels.

B. M. Curriculum in Sacred Music (Organ or
Piano)

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Total: 130 hours

1 Humanities-Arts (non-music), Literature, Philo-
sophical Perspectives, Intemodinity Studies.
### B. M. Curriculum in Sacred Music (Voice)

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*Humanities-Arts (Non-music), Literature, Philosophical Perspectives or Interdisciplinary Studies.

### B. M. Curriculum in Electronic Music

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*Humanities-Arts (Non-music), Literature, Philosophical Perspectives or Interdisciplinary Studies.

### B. M. Curriculum in Multiple Woodwind Instruments (Flute, Oboe, Bassoon)

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<td>Music Theory 210, 220</td>
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<td>Music Theory 230, 240</td>
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*Humanities-Arts (Non-music), Literature, Philosophical Perspectives or Interdisciplinary Studies.
### B. M. Curriculum in Music History and Literature

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<td>Foreign Language</td>
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<td></td>
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<tr>
<td>Sophomore</td>
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<tr>
<td>Junior</td>
<td>Music History 390</td>
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<td>Non-U. S. History, Social Science</td>
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<td>Electives</td>
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Total: 129 hours

1. Humanities-Arts (non-music), Literature, Philosophical Perspectives or Interdisciplinary Studies.

2. Must be two years in either French or German.

### B. M. Curriculum in Organ

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<td>Music History/Literature (300 level or above)</td>
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Total: 129 hours

### B. M. Curriculum in Studio Music and Jazz

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<td>Music General 301</td>
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<td>Electives</td>
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<td>Junior</td>
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<td>Music Theory 310</td>
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<td>Music Keyboard 440, 450</td>
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<td>Music Education 310</td>
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<td>Music General 200</td>
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<td>Electives</td>
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Total: 130 hours

1. Humanities-Arts (non-music), Literature, Philosophical Perspectives or Interdisciplinary Studies.
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<td>Music Instrument 430</td>
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*Humanities-Arts (non-music), Literature, Philosophical Perspectives, Interdisciplinary Studies.

**B. M. Curriculum in Voice**

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<tr>
<td>Applied Music Principle (200 level)</td>
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<td>Music Ensemble</td>
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<tr>
<td>Math, Natural Science</td>
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<tr>
<td>Physics and Astronomy 113</td>
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**PHILOSOPHY**

Professors:

- G. G. Brevnert (Head), Ph.D. Michigan; R. E. Aquila, Ph.D. Northwestern; G. G. Brevnert, Ph.D. Michigan; L. B. Cebik, Ph.D. Nebraska; J. W. Davis, Ph.D. Emory; B. C. Postow, Ph.D. Yale; D. Van de Vate, Ph.D. Yale.

Associate Professors:


Assistant Professors:

- H. P. Hamlin, Ph.D. Georgia; E. R. Jones III, Ph.D. Chicago; M. Lavin, Ph.D. Stanford.

Major Prerequisite: Three hours of logic, normally 130 or 135. Requirements: 24 hours of courses numbered 200 or above, including three hours of ethics, normally 240 or 440, and six hours in the history of philosophy, three in ancient, normally 320, and three in modern, normally 324. Majors are required to discuss their programs with a member of the philosophy faculty.

Minor: 18 hours in courses 200 or above. Minors should discuss their program with a member of the Philosophy faculty.

**PHYSICS AND ASTRONOMY**

Professors:

- W. M. Bug (Head), Ph.D. Tennessee; C. R. Bingham, Ph.D. Tennessee; W. E. Blass, Ph.D. Michigan State; J. E. Blevin (on leave), Ph.D. Massachusetts Institute of Technology; M. A. Breazeale (on leave), Ph.D. Michigan State; J. Burgdorfer, Ph.D. Freie Universitat Berlin; T. A. Callcott, Ph.D.
PHYSICS

B. S. Major The undergraduate physic major provides a thorough introduction to all of the core disciplines of physics so that students are prepared to pursue related specialties at a later point in their career. Students with special interests are encouraged to pursue those interests through research projects and/or independent study under the direction of members of the physics faculty thorough Physics 493.

Prerequisites to the major are: Physics 131-132 or 137-138, Mathematics 141-142.

The major consists of: Physics 231-232 or 237-238, Mathematics 231 and 241; Physics 311 (students intending to pursue graduate studies in Physics should also take 312 and 421 as electives); Physics 321, Physics 431-432, Physics 411-412 (340 and 341 or 342 may be substituted for students who do not intend to pursue graduate study); 361-362 or 461-462-463. Physics 401-402 are recommended. Total major hours: 42-43.

Minor: A minor in physics shall consist of Physics 231-232 or 237-238 and 10 hours from physics and astronomy courses numbered 300 and above. These 24 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.

To graduate with Honors in Political Science, the student must have a minimum GPA of 3.3 in Political Science, and a minimum cumulative GPA of 3.0.

PSYCHOLOGY

Professors:

R. Fowler (Head), Ph.D. Pennsylvania State; G. M. Burghardt, Ph.D. Chicago; A. G. Burststein, Ph.D. Chicago; J. F. Byrne, Ph.D. Tennessee; W. H. Calvin, Ph.D. California (Berkeley); C. P. Cohen, Ph.D. Pennsylvania; L. J. Henderson, Jr. (Head), Ph.D. California (Berkeley); D. H. Carlisle (Emeritus), Ph.D. North Carolina; M. R. Fitzgerald, Ph.D. Oklahoma; A. H. Hopkins, Ph.D. Syracuse; R. A. Gorman, Ph.D. New York; V. R. Iredell, Ph.D. Chicago; W. Lyons, Ph.D. Oklahoma; H. Plaa, Ph.D. Utah; N. M. Robinson (Emeritus), Ph.D. Syracuse; T. A. Smith, Ph.D. Ohio State; O. H. Stephens, Jr. (Alumni Distinguished Service Professor), Ph.D. Johns Hopkins; T. D. Ungs, Ph.D. Iowa; D. M. Welborn, Ph.D. Texas.

Associate Professors:


Assistant Professors:


Research Associate Professors:

L. C. Goff, Ph.D. Massachusetts Institute of Technology; C. Bottcher, Ph.D. Queens University of Canada; J. A. Allende, Ph.D. North Carolina.

Research Assistant Professors:


Lecturers:

R. C. Fairman, B.A. Earlham College; T. Riedinger, M.S. Vanderbilt.
Associate Professors:
J. M. Barlow, Ph. D. Tennessee; M. G. Johnson, Ph. D. Hopkins; J. Kandilakis, Ph. D. Tennessee; K. A. Lawler, Ph. D. North Carolina; S. Loucks, Ph. D. Tennessee; A. McIntyre, Ph. D. Yale; W. G. Morgan, Jr., Ph. D. Tennessee; R. S. Saudargas, Ph. D. Florida State; C. B. Travis, Ph. D. California (Davis).

Assistant Professors:
L. Beevers-Laurence, Ph. D. Tennessee; W. Berez, Ph. D. Tennessee; L. M. Coleman, Ph. D. Harvard; J. W. Erickson, Ph. D. Tennessee; L. D. Lawrence, Ph. D. Tennessee; R. E. Levey, Ph. D. California (Davis); Provost, Ph. D. Yale.

General Bulletin of the University. School of Professional Psychology; R. W. Gwynne, Ph. D. Washington; J. L. Fitzgerald, Ph. D. Chicago; T. B. Irving (Emeritus), Ph. D. Princeton; I. C. Hodges, Ph. D. Chicago; M. L. Levering, Ph. D. North Carolina; W. H. Heflin, Jr., Ph. D. Florida State; J. C. Elliott, M. A. Tulane; J. O. Hodges, Ph. D. California; M. T. Rabot, Cert. de Lic. Poitiers.

French Major: Consists of 27 hours in courses numbered 311 and above. All majors must have the following courses (or their equivalent with consent of the department): 311-312, 313, 341 or 342 or 345; 421; 422-424.

Italian Minor: Consists of 18 hours in courses numbered 311 and above. Students pursing a minor must consult with a departmental advisor.

Portuguese Minor: Consists of 18 hours in courses numbered 311 and above. Students pursuing a minor must consult with a departmental advisor.

Spanish Major: Consists of 26 hours in courses numbered 311 and above. The following are required: 311, 341, 421, 422. Students must also have a minimum of 3 hours of civilization, either 431 or 471; a minimum of 6 hours of conversation and composition from among the following: 323, 324, 423, 424; and a minimum of 6 hours of literature from among the following: 432, 433, 435, 436, 450, 472, 473, 474, 479. Majors are encouraged to take as many hours as possible, especially the surveys, 435-436 and 473-474. Students must also take 459 and 460.

Spanish Minor: Consists of 18 hours in courses numbered 311 and above. One course in conversation and composition from among the following: 323, 324, 423, 424; and the following are required: 311, 312, 421, 422.
remaining courses to be chosen among conversation and composition, civilization, phonetics, or literature. 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 the consent of the department. Courses in Spanish literature in English translation, however, may not be counted toward either a major or minor.

Placement Examination: Students who have had two or more year's work in French, Italian, or Spanish in high school or one year's work in another college should register in French, Italian, or Spanish 211. During the first week of the semester a placement test will be given, and students will be advised if a change in registration is indicated.

Proficiency Examinations: Students who have acquired a knowledge of French, Italian, or Spanish through private study, tutoring, residence in foreign countries, 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 number of courses. Superior students are encouraged to proceed as rapidly as their achievement permits.

RUSSIAN
See Germanic and Slavic Languages.

RUSSIAN AND EAST EUROPEAN STUDIES
See Cultural Studies.

SOCIOLOGY

Professors:
T. C. Hood (Head), Ph. D. Duke; D. M. Betz, Ph. D. Michigan State; J. A. Black, Ph. D. Iowa; D. J. Champion, Ph. D. Purdue; D. Clessand, Ph. D. Michigan State; D. W. Hastings, Ph. D. Massachusetts; D. R. Ploch, Ph. D. North Carolina; N. E. Shover, Ph. D. Illinois (Urbana); S. E. Wallace, Ph. D. Minnesota.

Associate Professors:
S. Kurth, Ph. D. Illinois (Chicago); R. G. Perrin, Ph. D. British Columbia.

Assistant Professors:

Instructor:
D. K. Harris, M. A. Tennessee.

Major: Prerequisites to the major are six lower-division hours in sociology which must include either 100 or 110, followed by 200. The major consists of 24 upper-division hours in sociology and must include 321 and 331. Students should complete these two courses by the end of their junior year.

Concentration in Criminal Justice: All prerequisites and upper-division courses required for general majors are required for this concentration. In addition, the concentration consists of 18 hours of upper-division sociology. Courses follow: 350, 351, 451, 459, 492 (3), and one course selected in consultation with advisor.

Minor: The minor consists of 12 upper-division hours in sociology and must include 321 and 331. Prerequisites to the minor are six lower-division hours in sociology which must include 200.

COLLEGE SCHOLARS HONORS

Director: Dr. Harry C. Jacobson

College Scholars is a major with selective admission. For details contact the director. All Scholars must enroll in one of the College Scholars Seminars 317-318 each term. They are encouraged to complete work in College Scholars Honors 491-492-493. Each student must complete a substantial piece of research, scholarship or creative imagination. College Scholars 498 is the appropriate course to use to receive credit for this work.

SPANISH
See Romance Languages.

SPEECH COMMUNICATION

Professors:
L. W. Lester (Head), Ed. D. Tennessee; F. D. Julian, Ph. D. Tennessee; G. A. Yeomans (Emeritus), Ph. D. Louisiana State.

Associate Professors:
M. L. Ambrester, Ph. D. Ohio; J. E. Buckley, Ph. D. Northwestern; N. C. Cook, M. A. Alabama; R. W. Glenn, Ph. D. Northwestern.

Assistant Professor:
R. S. Ambler, Ph. D. Ohio State.

Major: Speech Communication 100 is prerequisite to a major which consists of Speech Communication 270, 300, 310, 330, either 350 or 490, and 12 additional hours in Speech Communication courses, of which 9 hours must be in courses numbered 300 and above. No more than 5 hours from Speech Communication 200, 271-272, 371-372, 491, 492, and 493 may be counted toward the major.

Students interested in broad applications (e.g., teacher certification or religious training) may complete their required hours from a wide range of Speech Communication courses. In addition, specially designed options are available in (1) Interpersonal/Organizational Communication and in (2) Public Communication. Students should inquire in the Department Office for information and recommended advisors.

Minor: Speech Communication 100 is prerequisite to a minor which consists of 18 additional hours of Speech Communication courses at least 12 of which must be at the 300 level and above. No more than 3 hours from Speech Communication 200, 271-272, 371-372, and 491-492-493 may be counted toward the minor. Additional information for planning minor areas of focus which will complement a wide variety of majors in other Liberal Arts fields as well as in other colleges is available in the Department Office.

STATISTICS

See faculty list on page 59.

Liberal Arts students may major or minor in statistics under the supervision of the faculty of the Statistics Department in the College of Business Administration. The major is designed to prepare students for graduate studies in statistics or for professional work in various applications of statistical methods, including applications in the natural and social sciences, business and industry. Contact the Statistics Department for further information on careers in statistics and appropriate courses to take. It is highly recommended that a student majoring in statistics have a minor in an area of application.

Major: (a) Required courses consist of 19 hours from Mathematics 251, 252, 425; Statistics 471 or Mathematics 323 or 425; (b) Statistics electives consist of 6 hours from upper-division statistics courses not listed in part (a); and (c) Electives consist of 9 hours to be selected from no more than two of the following groups: Computer Science 111, 331, 401, 403; Management 481; Mathematics 323, 404, 421, 425, 445-546, 447-448, 471-472.

Minor: (a) Required courses consist of 13 hours from Mathematics 241, 251; Statistics 251, 252; and (b) Statistics electives consist of 6 hours from upper-division statistics courses not in part (a) of the minor.

THEATRE

Professors:

Assistant Professors:

Major: Theatre 100 is prerequisite to a concentration which consists of (1) Theatre 210, 211, 220, 245, 250, 260, 310, and 311; (2) 12 additional hours of Theatre courses numbered 200 and above, 8 hours of which may be in cognate areas approved by the department; (3) at least one half of the hours in the major must be at the 300 level or above; (4) only 8 hours of 380, 381, 480, 481 are applicable in the major.

Minor: Theatre 100 is prerequisite to a minor which consists of 18 additional hours of Theatre courses numbered 300 or above, 6 of which must be in history and criticism.

General requirements for the master's degree are given in the Graduate Catalog.
WOMEN'S STUDIES

See Cultural Studies.

ZOOPLOGY

Professors:
A. C. Echternacht (Head), Ph. D. Kansas; R. M. Bagby, Ph. D. Illinois; D. L. Bunting, Ill; Ph. D. Oklahoma State; J. G. Carlson (Emeritus), Ph. D. Pennsylvania; D. A. Etnier, Ph. D. Minnesota; M. A. Handel, Ph. D. Kansas State; B. Hochman, Ph. D. California (Berkeley); K. W. Jeon, Ph. D. London (England); D. C. Joy (Distinguished Scientist, Science Alliance Center of Excellence), Ph. D. Oxford (England); J. R. Kennedy, Ph. D. Iowa; J. N. Liles, Ph. D. Ohio State; J. A. MacCabe, Ph. D. California (Davis); S. L. Pimm, Ph. D. New Mexico State; S. E. Riechert, Ph. D. Wisconsin; L. E. Roth, Ph. D. Chicago; C. A. Shivers, Ph. D. Michigan State; J. T. Tanner (Emeritus), Ph. D. Cornell; G. L. Vaughan, Ph. D. Duke; H. G. Welch (Emeritus), Ph. D. Florida; G. L. Whitson, Ph. D. Iowa.

Associate Professors:
K. D. Burnham (Emeritus), Ph. D. Iowa; T. T. Chen, Ph. D. Florida; D. J. Fox, Ph. D. Johns Hopkins; N. B. Greenberg, Ph. D. Rutgers; G. F. McCracken, Ph. D. Cornell; M. L. Pan, Ph. D. Pennsylvania.

Assistant Professors:
C. Boake, Ph. D. Cornell; J. Drake, Ph. D. Purdue; R. Ganguly, Ph. D. Nebraska.

Research Associate Professors:
T. Ashley, Ph. D. Florida State; R. Tindall, Ph. D. Pennsylvania State.

Research Assistant Professor:
J. L. Gittleman, Ph. D. Sussex (Brighton, England).

Prerequisites to upper division courses:
Biology 110-120 or Biology 150 or Zoology 117-118 are prerequisites for all upper division courses (with the exception of 480). Additional prerequisites are included with course descriptions.

Major: Prerequisites to the major are Biology 110-120 or Biology 150 or Zoology 117-118 and Chemistry 120-130. Corequisites are Mathematics 151-152 or 141-142 and a year sequence in physics (except 141-142). Physics 221-222 are recommended and are required for admission to some professional schools.

Minor: Prerequisites to the minor are Biology 110-120 or 150 or Zoology 117-118 and Chemistry 120-130 or 100-110. The minor consists of Biology 210-220-230, 9 hours of upper division Zoology courses.

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 specific semesters. Students should plan in advance the proper sequence. Information on the semesters a course is to be offered is available in the departmental office.
The baccalaureate nursing program has as its central focus and frame of reference 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 and develop creative thinking and other cognitive, affective, and psychomotor processes that are essential for effective nursing practice and for full and meaningful involvement as a contributing member of society.

A broad base of general education, a thorough study of human behavior, emphasis on health maintenance, health promotion, and health restoration and a strong family and community orientation are essential components of baccalaureate education in nursing. By maintaining a high quality, relevant program that is responsive to the increasing complexity of health care delivery, the ever changing health needs of society, and the changing and expanding role of the nurse, graduates of the program 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; and (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 eight semesters of full-time study or the equivalent in part-time study. Students may complete the entire program at UTK or they may take most or all of the lower division component of the program at any regionally accredited college or university. One-hundred-twenty semester hours are required for graduation. The program is designed to accommodate high school graduates, transfer students from within or external to UTK, and registered nurses who hold associate degrees in nursing or who are graduates of diploma nursing programs.

PROGRESSION POLICIES AND PROCEDURES

(1) During the spring semester of the year the student expects to meet all lower division course requirements, she/he must complete a Petition for Progression form and submit it to the college's Student Affairs Office no later than the second Friday of UTK's spring semester. If the number of petitions exceeds the number of students that can be accommodated students will be selected on the basis of: (a) cumulative GPA for courses completed; (b) grades in required courses; (c) number of course withdrawals and repetitions; (d) grade improvement over time; and (e) probability of completing all lower division requirements prior to the following fall.

(2) If a student is selected for progression to upper division nursing courses but then fails to successfully complete all lower division requirements prior to the fall semester, the student will not be permitted to enroll in nursing courses and must submit another petition the following year.

(3) Registered nurses must also complete the lower division components of the program at any regionally accredited college or university. One-hundred-twenty semester hours are required for graduation. The program is designed to accommodate high school graduates, transfer students from within or external to UTK, and registered nurses who hold associate degrees in nursing or who are graduates of diploma nursing programs.
GRADING AND CONTINUATION POLICIES

1. The minimum acceptable grade for all courses in the curriculum except humanities electives is a "C". The satisfactory/no credit grading option is not available for nursing courses.
2. No nursing course may be repeated more than once. If a "D" or "F" grade is earned on the second attempt, the student will be required to withdraw from the program.
3. Any student who receives a grade of "D" or "F" for more than two nursing courses will be required to withdraw from the program even if previous courses for which "D's" or "F's" were awarded have been repeated with a grade of "C" or higher.
4. If a student receives an Incomplete "I" in a nursing course, the "I" must be removed prior to enrolling in any course for which the uncompleted course is a prerequisite.
5. If a student's clinical performance for any nursing course is found to be unsatisfactory, the grade for that course will be an "F" regardless of any other grades earned in other components of the course. If the unsatisfactory clinical performance is characterized by unethical, unprofessional, or unsafe behavior, behavior that actually or potentially places the client in jeopardy, the student will be required to withdraw from the program.
6. Requirements for competence or certification in cardio-pulmonary resuscitation are included in the Undergraduate Student Handbook.

HEALTH AND INSURANCE REQUIREMENTS

Students must meet specific physical examination and immunization requirements as specified by state law and by the rules and regulations set forth by the various clinical agencies. All non-nurse students must participate in the college's group malpractice and liability insurance program. All registered nurses must provide proof that they have appropriate malpractice-liability insurance coverage. Specific information concerning these requirements will be provided to the students at appropriate times by the nursing faculty and/or the Associate Dean for Student Affairs.

COURSE LOAD

The maximum credit hours per semester for which a nursing student may register without special permission is 18.

THE BACHELOR OF SCIENCE IN NURSING CURRICULUM

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<td>Philosophy 345</td>
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<td>Nursing 301, 302, 304, 311, 313</td>
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</table>

Total: 120 hours

Registered nurses must successfully complete all of the non-nursing courses listed above as well as the nursing courses listed below. Courses with an asterisk may be challenged.

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<tr>
<td>Nursing 401, 403, 404, 411</td>
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</table>

Total: 53 hours

Registered nurses may earn up to eleven semester hours of upper-division nursing credits by means of validation examinations that are designed to measure prior learning. More information about the examinations may be obtained from the Student Affairs Office or from the faculty advisor for registered nurses.

The following courses are open to all university students: 214, 301, 317.

GRADUATE

General requirements for the Master of Science in Nursing degree are given in the Graduate Catalog.
College of Social Work

Eunice O. Shatz, Dean and Professor of Social Work, Ph. D. Brandeis University, The Florence Heller School for Advanced Studies in Social Welfare

The program prepares students for social work careers in such diverse areas as schools, youth programs, family service agencies, nursing homes, courts, mental health centers, and welfare agencies. The degree provides graduates a competitive advantage in many jobs, the possibility of up to one year's standing in some master's degree programs in social work, and the potential to be licensed in a number of states throughout the nation.

The social work curriculum builds on a strong liberal arts base. The humanities and the social and behavioral sciences are emphasized to help students understand human diversity and the transactions between people and their environment. The curriculum combines classroom experience and agency-based field placements. Courses provide a knowledge base in social work practice theory, human behavior, social welfare policy, and research. Educationally directed field placements, which consist of over 500 clock hours of supervised field instruction in agency settings throughout greater Knoxville, provide extensive and challenging opportunities for students to apply the lessons of the classroom to the problems of society. The program is accredited by the Council on Social Work Education.

The undergraduate social work program (BSSW) started in 1982 in the College of Liberal Arts. It was granted initial accreditation by the Council on Social Work Education in January 1984, and reaffirmation was given in 1987. The program was transferred to the College of Social Work in September 1985. The three programs, BSSW, MSSW and Ph. D., in the College represent the full continuum of social work education.

FACILITIES

The College of Social Work is housed in Henson Hall, located on the corner of Cumberland Avenue and Volunteer Boulevard on the UTK campus in Knoxville. This building houses the administrative and faculty offices, along with classrooms for the BSSW, MSSW and Ph. D. programs. Video and computer resources are available to facilitate instruction.

GRADUATE PROGRAM

The College of Social Work offers a fully accredited two-year graduate professional degree at the master's level (MSSW). The College also offers a graduate program leading to a Doctor of Philosophy in Social Work (Ph. D.). Information concerning graduate programs is given in the College of Social Work Bulletin and also in the Graduate Catalog. Masters Degree Programs are offered on the campus in Knoxville and in Nashville and Memphis. The Ph. D. Program is offered in Knoxville.

GRADING POLICY

The satisfactory/no credit option is not permitted in the major. The minimum acceptable grade for all social work courses is a C. Courses, other than field, in which a D or F is achieved may be repeated once. Field courses must be completed with a C or better, and may not be repeated.

A student receiving an incomplete (I) in any social work course must remove the incomplete before enrollment in subsequent field practice.

COURSE LOAD

The maximum credit hours per semester allowed for any student is 18. Special permission must be obtained for any over load.

PROGRESSION REQUIREMENTS

Students admitted to the University may request a faculty advisor from the College of Social Work. Students in the College must move through Initial and Full Progression. The following factors identify progression criteria for all social work students:
INITIAL PROGRESSION
1. Successful completion of Social Work 200 and 250 with a grade of C or better.
2. Cumulative grade point average of 2.0 or above.
3. Successful completion of a minimum of 60 semester hours. Initial progression must be completed prior to enrollment in any 300-level social work courses.
4. Favorable review of the student's application for entry into the junior level social work courses by the faculty admissions committee. The application requires an essay discussing the student's interest in and preliminary understanding of the profession.

FULL PROGRESSION
1. Successful completion of junior level social work courses with a grade of C or better.
2. Cumulative grade point average of 2.0 or above.
3. Successful completion of a minimum of 90 semester hours. Full progression must be completed prior to enrollment in 400-level social work courses.
4. Favorable approval by the BSW faculty prior to entry into senior level classes. This process will include a review of the student's performance in junior field practice.

Full progression is based on the recognition that social work has an intensive field component in which students demonstrate aptitude and ability to work with other people. While review is ongoing, full progression provides an additional opportunity to review the students' potential for entry-level practice.

CURRICULUM

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<thead>
<tr>
<th>Freshman</th>
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<tr>
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<td>Women's Studies</td>
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<td>Zoology 210, 220</td>
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<td>Child and Family</td>
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<td>Sociology 336</td>
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<td>Anthropology 312</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>9</td>
</tr>
</tbody>
</table>

Total: 124 hours

1. The following sequences may be selected: Astronomy 151-152; Botany 110-120; Chemistry 120-130; Geography 131-132; Geology 101-102; Physics 121-122.

2. The following literature packages may be selected: Classics 253-254; English 201-202; English 211-222; English 231-232 or 233; Germanic and Slavic Languages 221-222; Religious Studies 312-313; French 291-292; Spanish 291-292.

3. The following philosophical perspective packages may be selected: Classics 221-222; Philosophy 110-111; Philosophy 120-121; Philosophy 240-344; Philosophy 380-382.

4. One course selected from: Anthropology 310; Anthropology 315; Geography 363; History 370; History 380; History 440; Philosophy 390; Political Science 311; Political Science 374; Religious Studies 352; Sociology 343; Sociology 340; Speech 466.

5. One course selected from: Anthropology 314; Classics 381; Classics 382; English 302; Geography 372; Geography 373; Geography 375; Geography 376; Germanic and Slavic Languages 363; History 320; History 374; Philosophy 326; Political Science 350; Political Science 361; Political Science 469; Religious Studies 332; French 432; Spanish 431; Spanish 471; Sociology 446.
GPA is less than 3.25, a student fails to earn the required 3.25. If, while the cumulative GPA falls below 3.25, a student can demonstrate extenuating circumstances to the University Honors Committee.

TENNESSEE SCHOLARS PROGRAM

Each year, twenty-five outstanding high school students will be selected for a four-year program of honors work. Students may have any major in any college offering the Bachelor’s degree. In addition, Tennessee Scholars’ work includes: a minimum of four lower division honors courses; a close relationship with a faculty mentor; a one credit hour Tennessee Scholars seminar each term for four years; and a senior honors paper or project. The Tennessee Scholars Program is administered by the University Honors Committee which includes representatives from each of the ten baccalaureate colleges and schools. Students are selected on the bases of ACT/SAT scores, high school GPA and the difficulty of the high school course of study, academic references, and a personal statement. Students who are selected as Tennessee Scholars are awarded substantial four-year scholarships.

Retention in Tennessee Scholars Program

Tennessee Scholars are selected on the bases of past academic performance and their potential for academic excellence. As Tennessee Scholars, they are expected to adhere to the written policies and requirements of the Tennessee Scholars Program and are encouraged to enroll in courses that will stimulate and challenge them as well as broaden their horizons. As a result, the University Honors Committee will not be concerned if grades in occasional courses fall below superior range. However, all Tennessee Scholars are expected to maintain a cumulative grade point average of 3.25.

A student in the Tennessee Scholars Program whose cumulative GPA falls below 3.25 will be allowed to continue in the Program and receive its benefits so long as he or she earns a 3.25 GPA or better every semester, thus eventually raising the cumulative GPA to the required 3.25. If, while the cumulative GPA is less 3.25, a student fails to earn a 3.25 or better in any semester, he or she will be removed from the Tennessee Scholars Program and lose all its benefits, unless the student can demonstrate extenuating circumstances to the University Honors Committee.

Senior Project Deadlines in Tennessee Scholars Program

The following is a list of mandatory deadlines for the senior research project in the Tennessee Scholars Program:

1. No later than the end of the second year in residence, a student must have chosen a UTK faculty member to serve as mentor for the senior research project, and that faculty member must have agreed in writing to serve as the student’s mentor.

2. No later than the end of the third year in residence, a student, together with the faculty mentor, will choose two other faculty members who, together with the faculty mentor, will serve as the student’s research project committee. The purpose of the committee is to aid students in formulating, designing and executing their projects and to evaluate the projects when completed. Similarly, by the end of the third year in residence, a student must submit a written abstract or proposal for the senior research project to his/her faculty committee for suggestions and approval.

3. No later than the end of the first semester of a student’s senior year, a first draft of the senior research project must be submitted to the faculty mentor, and the faculty mentor must report that fact to the University Honors Director. In addition, a student will be expected to present the results of his or her research to the Tennessee Scholars senior seminar.

4. Within four weeks of the end of a student’s final semester, he or she will be expected to present the completed project to the student’s committee, the student’s peers in the Tennessee Scholars Program, and invited guests. Upon the conclusion of the presentation, the student’s faculty mentor will submit a letter to the Director of the University Honors Program certifying that the research project has been completed and has been accepted by the committee. One copy of the research project must be filed in the University Honors Office and additional copies should be given to the student’s committee.

Failure to meet these guidelines will result in the delay of a Tennessee Scholar’s graduation.

UNIVERSITY HONORS COURSES

Seminars and colloquia focused on various topics, issues, and problems, and limited in size to 15-20 students. These are taught by faculty from all ten undergraduate colleges and schools, and may be repeated. University Honors courses are open to all undergraduate students on the basis of high school GPA, ACT/SAT scores, UTK GPA of 3.25 or better, or by strong professional recommendation.

1 April 10 for students graduating in the Spring semester, and November 15 for students graduating in the fall semester. Students graduating in August (at the end of summer school) are urged to complete their projects by the April 10 deadline; however, in special cases and with the written consent of the faculty mentor, exceptions to this rule may be made.

2 There may be types of projects that do not lend themselves to a formal (public) defense. Hence the decision whether or not to have a public defense should be decided by the research committee and the Director of the University Honors Program.
The University Studies Program has three general objectives: (1) to foster interdisciplinary teaching and scholarship, especially across college boundaries; (2) to promote active, integrative, and personal learning; and (3) to nurture the personal and intellectual development of faculty and students.

In pursuit of these objectives, University Studies sponsors three types of activities: FACULTY COLLOQUIES, which are ongoing, structured, interdisciplinary conversations on a topic or nexus of topics; LEARNING COMMUNITIES, which are yearlong clusters of courses in which a group of faculty and students work together to integrate material from several disciplines dealing with a common theme; and INTERDISCIPLINARY COURSES, often team-taught, many stemming from the colloquy discussions.

Faculty Colloquies explore important contemporary issues which are sufficiently fundamental to involve the attention of faculty and students from all colleges. Current colloquies are: Technology, Society and the Common Good; Aging and Society; Land and People (Tennessee Appalachian Forum); Learning, Thinking, Creating; Forum on International Development; Humanistic Perspectives on Science and Society; Appalachian Studies; and Freshman Year Experience.

The University Learning Community at the sophomore level has as its goals: (a) To form a community of learners, including both faculty and students; (b) To promote active involvement in learning by making use of case studies, active class exercises, small group projects, and other alternatives to a lecture method of instruction; (c) To promote integrative learning by focusing on a common theme from the point of view of a variety of disciplines throughout a year-long series of courses; and (d) To integrate classroom learning with wellness activities and social interaction with other students and faculty of the learning community.

For further information, contact: Dr. Glenn C. Graber, Director; University Studies Program; 401 Student Services Building — PHONE: 974-4832.
Reserve Officers Training

DEPARTMENT OF MILITARY SCIENCE

ARMY ROTC

LTC Hugh E. Howard, III, Professor of Military Science

The military program at the University of Tennessee predates that of any other state university in the country, having been introduced in 1844. In that year, Professor Albert Miller Lea, a West Point graduate, organized an infantry company. With the outbreak of the Mexican War, the entire company, as well as thousands of other Tennesseans, volunteered for service in the war. Thus, Tennessee became known as the "Volunteer State".

When the University of Tennessee reopened after the Civil War, a system of military discipline was adapted. A Code of Military Regulations was drawn up and a copy was provided each student when he matriculated. The whole institution was put under regular West Point discipline. The student body was organized into a battalion of cadets, which consisted of four companies fully officered, armed and equipped under the command of the commandant and his staff of cadet officers. The University of Tennessee remained as a Military Garrison for a period of six years, until 1877. Military Science continued to be taught, since the University of Tennessee was a Land Grant Institution and instruction in Military Science was required by the 1862 Act of Congress.

The National Defense Act of 1916 changed the old military organization into a ROTC unit. For the first time, the Federal Government began to pay a part of the uniform cost for basic course students: uniforms and other equipment were provided by the Government for Juniors and Seniors, and a monthly subsistence allowance was given to advanced course students.

From 1928-1930, Major (later Brigadier General) Robert R. Neyland was the Professor of Military Science and football coach at the University of Tennessee. Today, Neyland Stadium stands in tribute to his great accomplishments.

The purpose of Army ROTC 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 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 required for the modern Army. The program insures that men and women educated in a liberal and broad spectrum of American institutions of higher learning are commissioned annually into the officer corps.

SATISFACTORY/NO CREDIT COURSES

Since Military Science is not a major course of study that leads to a degree in a specific academic discipline, the number of satisfactory/no credit courses is decided by the college of the student's academic major. All ROTC courses are offered on a letter grade basis only.

COURSE LOAD

No more than one Military Science course may be taken during any given semester, unless an exception to policy is approved by the Professor of Military Science on a case-by-case basis. Students enrolled in the advanced program (upper division Military Science 300 and 400 level courses) and ROTC scholarship cadets are required to be full-time students, taking at least 12 hours each semester.

COURSE SUBSTITUTION

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 (Military Science 100 and 200 level courses). Placement credit may also be authorized for completion of basic training and advanced individual training. Exemption allowed will be determined by the Professor of Military Science. Military Science courses taken at other colleges or universities are transferable as approved by the Professor of Military Science.

REQUIREMENTS FOR ENROLLMENT AND CONTINUANCE

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 for enrollment in the Advanced ROTC program who seek a Commission must:
   a. Have successfully completed Military Science 110, 120, 210, 220 or have accomplished one of the following: Prior Military Service, ROTC Basic Military Studies - Practicum (MS 200), 3-Year High School ROTC Basic Course.
   b. Have two years remaining at the University (either undergraduate, graduate or in pursuit of additional course work).

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c. Have completed a minimum of 30 semester hours.
d. Be under 30 years old at time of commissioning.
ea. Be enrolled as a full-time student, either at The University of Tennessee or at a nearby institution in a cooperative program.
f. Meet military screening and physical requirements.
g. Maintain a 2.0 G.P.A.
h. Maintain B average in Military Science Courses as a scholarship student.

NOTE: Regularly enrolled students who meet the academic prerequisites may take individual courses as electives with the permission of the department head and academic advisor.

REQUIREMENTS FOR ALL MILITARY SCIENCE COMMISSIONEES

The following Military Science (MS) Advanced Course Curriculum must be successfully completed:

Military Science 310 (4) - Advanced Military Studies I
Military Science 320 (4) - Advanced Military Studies II
Military Science 400 (4) - Advanced Camp-Practicum
Military Science 410 (4) - Command and Staff Functions
Military Science 420 (4) - Military Ethics and Law

In addition to a baccalaureate degree, there are required and recommended courses in designated fields of study that students must complete prior to commissioning. Students meet these prerequisites by successful completion of required and elective courses taken from the university curriculum in the required areas of concentration.

Courses in the following designated fields of study are required of students seeking a commission in the United States Army.

1. One course in written communications.
2. One course in human behavior.
3. One course in military history.
4. One course in a foreign language (scholarship students only).
5. One course in Math Reasoning.
6. One course in Computer Literacy.
7. One course in management and national security studies are strongly recommended but are not required.

SPECIAL PROGRAMS

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 of $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.

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 guidance counselors early in August or September of their senior year to apply for the four-year scholarship. Two- and three-year scholarship applicants should contact the Professor of Military Science for further information. Certain other private financial scholarships and grants are available to ROTC cadets.

Simultaneous Membership Program The "SMP" option combines the Army ROTC living allowance ($100/month) with membership in the Army Reserve or 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.

Early Commissioning Program By utilization of placement credit for the Basic Military Studies, many cadets enter Advanced Military Studies in their 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 Army National Guard while still enrolled in college pursuing a four-year degree.

Branch Selection The curriculum of the Army ROTC Program is designed to qualify the cadet for appointment as an officer. Selection for assignment to the various branches of the Army is based upon: the personal interests of the cadet; the major course of study; academic accomplishments; leadership potential; and 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, Preshing Rifles 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.

MILITARY SCIENCE CURRICULUM

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<td>Senior</td>
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Total: 30 hours

Basic Military Studies - Practicum

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Total: 24 hours

Advanced Placement

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<td>Military Science 400</td>
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<td>Military Science 410, 420</td>
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Total: 20 hours

VARIATIONS TO THESE SEQUENCES OF STUDY MAY BE APPROVED BY THE PROFESSOR OF MILITARY SCIENCE ON A CASE-BY-CASE BASIS. TOTAL MILITARY SCIENCE HOURS OFFERED IS 44. TOTAL MILITARY SCIENCE HOURS APPLICABLE FOR COMMISSION IS 30. TOTAL MILITARY SCIENCE HOURS APPLICABLE FOR COMMISSION IS 20. LOWER DIVISION CREDIT HOURS GRANTED BY THE UNIVERSITY FOR MILITARY SERVICE ARE DEPENDENT UPON TIME SPENT IN SERVICE AND SERVICE SCHOOLS ATTENDED.

PROGRESSION REQUIREMENTS

1. Minimum semester hours/GPA for entrance into Basic Military Studies - Practicum (Military Science 200): 30 semester hours/2.00 GPA.
2. Minimum overall GPA for entrance into the advance course (Military Science 310, 320, 400, 410, 420): 2.00.
3. Minimum GPA in Military Science Courses: 2.00.
4. Minimum overall GPA for commissioning: 2.00.
5. Quarterly counseling sessions with military advisor required for Advance Course and scholarship students only.
6. Officer Selection Battery test.

DEPARTMENT OF AIR FORCE

AIR FORCE ROTC PROGRAM

Professor of Air Force Aerospace Studies: Lt. Colonel Rex W. Jones (Head), M. S. University of Kentucky.

Assistant Professors: Captain James E. Goss, M. S. University of Florida; Captain Richard E. Lee, M. S.
University of Southern California; Captain Richard L. Modell, M. S. AF Institute of Technology.

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 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 being medically qualified, scores achieved on the Scholastic Aptitude Test (SAT) or American College Test (ACT); scores achieved on the Air Force Officer Qualifying Test (AFOQT); successful completion of a four-week field training course at an Air Force base; and the recommendation of the Professor of Aerospace Studies.

The Two-Year Program: The Two-Year Program consists of the Professional Officer Course (POC), the last two years of the Four-Year Program. It is designed to provide greater flexibility to meet the needs of students desiring Air Force opportunities. The basic requirement is that applicants have two academic years remaining at either the undergraduate or graduate levels, or a combination of both. After being nominated by the Professor of Aerospace Studies, applicants seeking enrollment in the Two-Year Program are evaluated using the same criteria used for the four-year program except the length of the field training course is six weeks. 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 Department 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.

SCHOLARSHIP PROGRAM

Air Force ROTC Scholarships are available to qualified applicants in both the Four- and Two-Year Programs. Each scholarship provides full tuition, laboratory and incidental fees, and book fee. In addition, scholarship cadets receive a non-taxable $100 stipend each month during the school year while on scholarship status.

High School Students: Competitive four-year scholarships are available to high school male and female students who enroll in certain scientific and engineering career fields. Some scholarships are also available to male and female students who enroll in certain non-technical majors. Four-year scholarship applications are contained in the Air Force ROTC Four-Year College Scholarship Program Application Booklet. Booklets may be obtained directly from Air Force ROTC Public Affairs, Maxwell, AFB, AL 36112.

College students: Other scholarship opportunities exist for students already in college. Four-, three-, and two-year scholarships are available on a competitive basis and the student must have at least four, three, or two undergraduate or graduate years of study remaining in order to compete. Applications for these scholarships should be made directly to the Department of Aerospace Studies.

In order to retain an AFROTC scholarship, students must maintain the minimum grade point average prescribed by the university and must take and complete an English composition course or its equivalent before completing the GMC.

PAY AND ENTITLEMENTS

All cadets enrolled in AFROTC are furnished texts and uniforms. Enrollees 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 early withdrawal or disenrollment from the program. Professional Officer Course cadets 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 of active duty. Those graduates going into pilot assignments will be required to serve eight 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.
Advanced Studies

THE COLLEGE OF LAW
Marilyn Yarbrough, Dean
Mary Jo Hoover, Associate Dean
Julia P. Hardin, Associate Dean
Patrick Harbin, Associate Dean
John A. Sebert, Jr., Associate 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 conferment 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, 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
C. W. Minkel, Vice Provost and Dean of The Graduate School
Wayne T. Davis, Associate Dean of The Graduate School
Linda R. Painter, Associate Dean of The Graduate School
Diana Lopez, Director, Graduate Admissions and Records
S. Kay Reed, Graduate Recruitment Coordinator
Ann L. Lacava, Thesis/Dissertation Coordinator
Rose Ann Trantham, Assistant Director, Graduate Admissions and Records
Irene Kaplan, 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 94 fields of specialization and doctoral work in 51. Approximately 5,700 graduate students are enrolled, both on and off campus. Administration of graduate student policies and procedures, 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 visit the Office of Graduate Admissions and Records, 218 Student Services Building, The University of Tennessee, Knoxville, Tennessee 37996-0220 or call (615) 974-3251.

GRADUATE SCHOOL OF BIOMEDICAL SCIENCES
Raymond A. Popp, Acting Director

FULL-TIME FACULTY
Professors:
D. Billen, Ph. D. Tennessee; D. E. Olins, Ph. D. Rockefeller.

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

Research Professor:
Research Associate Professor:
E. C. Uberbacher, Ph. D. Pennsylvania.

The Graduate School of Biomedical Sciences offers programs leading to the Master of Science and Doctor of Philosophy degrees. The School 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, ORNL, P. O. Box Y, Oak Ridge, Tennessee 37831. Consult the Graduate Catalog for listing of graduate level courses.

COMPARATIVE AND EXPERIMENTAL MEDICINE JOINT GRADUATE PROGRAM

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 on page 162-163.

ENERGY, ENVIRONMENT, AND RESOURCES CENTER

E. William Colglazier, Director

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

GRADUATE SCHOOL OF LIBRARY AND INFORMATION SCIENCE

Gary R. Purcell, Director

Professors:

Associate Professors:

Assistant Professor:
M. H. Karrenbrock, Ed. D. University of Georgia.

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: 330, 340, 475, 510, 530, 551, 564, and 574.

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.

LIFE SCIENCES

Coordinating Council:
H. L. Adler (Chair); Physiology: R. Bagby; Biotechnology: D. K. Dougall; Cellular, Molecular and Development Biology: J. M. Becker; Environmental Toxicology: W. R. Farkas; Ethology: G. B. Burghardt; Plant Pathology and Genetics: O. J. Schwarz.

The programs leading to the M.S. and Ph.D. degrees in the Center's several concentration areas are part of the departmental and intercollegiate programs which augment the programs of individual departments.

The graduate program in Life Sciences supports studies and research in the following concentrations: physiology; biotechnology (M.S. only); cellular, molecular and development biology; ethology; environmental toxicology; and plant physiology and genetics. Students interested in any of these areas should contact either the Chair of Life Sciences or the Director of the area of interest. For complete information, refer to the Graduate Catalog.

GRADUATE SCHOOL OF PLANNING

James A. Spencer, Director

Professors:

Associate Professors:
G. E. Bowen, M. A. George Washington; P. Fisher, Ph. D. Florida State.

The Graduate School of Planning offers a program of studies leading to the professional degree of Master of Science in Planning. For complete information, refer to the "Graduate Catalog".

SPACE INSTITUTE

Kenneth E. Harwell, Dean
Richard M. Roberds, Associate Dean

The Space Institute is a graduate education and research institution established in 1964 on a 365 acre lakeshore campus in Middle Tennessee. UTMS has evolved into an internationally recognized institution for graduate study and research in engineering, physics, mathematics, and computer science. The accredited academic programs and educational policies of the Space Institute have their origins in appropriate departments of The University of Tennessee, Knoxville. The more than 40 faculty members of the institute carry out these accredited academic programs through classroom teaching, informal seminars, active research, and directing the research of their students in an environment of creative work and advanced study. Programs are available to students devoting full-time effort toward M.S. and Ph.D. degrees, those interested in continuing education for updating and broadening knowledge, and those who wish to pursue post-doctoral research. Graduate degree programs are available with majors in Aerospace Engineering, Aviation Systems, Computer Science, Electrical Engineering, Engineering Science, Industrial Engineering (engineering management concentration), Mathematics, Mechanical Engineering, and Physics. In addition to the fundamental studies characteristic of each
discipline, research opportunities are available in many areas including aerodynamics, atmospheric science, fluid mechanics, computer graphics, knowledge engineering, energy conversion processes, thermal sciences, space systems, remote sensing, propulsion, computational fluid dynamics, and other aspects of atmospheric and space flight.

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

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

TRANSPORTATION CENTER
E. William Colglazier, Director

The Transportation Center, utilizing an interdisciplinary approach to transportation research, brings together both University 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
E. William Colglazier, 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 which addresses a wide range of problems of interest to the state, region, and nation; (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; and (3) to promote education in fields relating to water resources and to encourage the entry of promising students into careers in these fields.
### Majors and Degree Programs

<table>
<thead>
<tr>
<th>College of Agriculture</th>
<th>DEGREE</th>
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</thead>
<tbody>
<tr>
<td>Agricultural Extension Education</td>
<td>M.S.</td>
</tr>
<tr>
<td>Agricultural Economics</td>
<td>M.S., Ph.D.</td>
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<tr>
<td>Agricultural Engineering</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Agricultural Engineering Technology</td>
<td>M.S.</td>
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<tr>
<td>Animal Science</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Entomology and Plant Pathology</td>
<td>M.S.</td>
</tr>
<tr>
<td>Food Technology and Science</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Forestry</td>
<td>M.S.</td>
</tr>
<tr>
<td>Ornamental Horticulture and Landscape Design</td>
<td>M.S.</td>
</tr>
<tr>
<td>Plant and Soil Science</td>
<td>M.S., Ph.D.</td>
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<tr>
<td>Wildlife and Fisheries Science</td>
<td>M.S.</td>
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<tr>
<th>College of Business Administration</th>
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<tbody>
<tr>
<td>Accounting</td>
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<tr>
<td>Business Administration</td>
<td>M.B.A., J.D., M.B.A., Ph.D.</td>
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<tr>
<td>Economics</td>
<td>M.A., Ph.D.</td>
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<tr>
<td>Management Science</td>
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<tr>
<td>Statistics</td>
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<th>College of Communications</th>
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<tr>
<td>Communications</td>
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<tr>
<td>Adult Education</td>
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<td>Art Education</td>
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<td>Business Education</td>
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<td>College Student Personnel</td>
<td>M.S., Ed.S., Ed.D.</td>
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<tr>
<td>Curriculum and Instruction</td>
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<td>Education</td>
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<td>Educational Psychology</td>
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<td>Educational Psychology and Guidance</td>
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<td>Guidance</td>
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<td>Health Education</td>
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<td>Industrial Education</td>
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<td>Physical Education</td>
<td>M.S., Ed.D.</td>
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<td>Public Health</td>
<td>M.P.H.</td>
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<tr>
<td>Recreation &amp; Leisure Studies</td>
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<td>Rehabilitation Counseling</td>
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<tr>
<td>Safety Education and Service</td>
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<td>School Health Education</td>
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<tr>
<td>Special Education</td>
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<tr>
<td>Vocational-Technical Education</td>
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<tr>
<td>Aerospace Engineering</td>
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<tr>
<td>Chemical Engineering</td>
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</tr>
<tr>
<td>Civil Engineering</td>
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<tr>
<td>Electrical Engineering</td>
<td>M.S., M.S., Ph.D.</td>
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<tr>
<td>Engineering Science</td>
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<tr>
<td>Environmental Engineering</td>
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<tr>
<td>Industrial Engineering</td>
<td>M.S.</td>
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<tr>
<td>Mechanical Engineering</td>
<td>M.S., Ph.D.</td>
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<tr>
<td>Metallurgical Engineering</td>
<td>M.S., Ph.D.</td>
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<tr>
<td>Nuclear Engineering</td>
<td>M.S., Ph.D.</td>
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<tr>
<td>Polymer Engineering</td>
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<th>College of Human Ecology</th>
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<tbody>
<tr>
<td>Child and Family Studies</td>
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<tr>
<td>Food Science</td>
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<tr>
<td>Food Systems Administration</td>
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<tr>
<td>Home Economics</td>
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<tr>
<td>Human Ecology</td>
<td>Ph.D.</td>
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<tr>
<td>Interior Design</td>
<td>M.S.</td>
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<tr>
<td>Nutrition</td>
<td>M.S.</td>
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<tr>
<td>Textiles and Apparel</td>
<td>M.S.</td>
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<th>College of Liberal Arts</th>
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<tr>
<td>Anthropology</td>
<td>M.A., Ph.D.</td>
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<td>Art</td>
<td>M.F.A.</td>
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<tr>
<td>Audiology</td>
<td>M.A.</td>
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<tr>
<td>Biochemistry</td>
<td>M.S., Ph.D.</td>
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<tr>
<td>Botany</td>
<td>M.S., Ph.D.</td>
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<tr>
<td>Chemistry</td>
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<tr>
<td>Computer Science</td>
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<tr>
<td>English</td>
<td>M.A.</td>
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<tr>
<td>French</td>
<td>M.S., Ph.D.</td>
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<tr>
<td>Geography</td>
<td>M.S., Ph.D.</td>
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<tr>
<td>Geology</td>
<td>M.S., Ph.D.</td>
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<tr>
<td>German</td>
<td>M.A.</td>
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<td>History</td>
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<tr>
<td>Mathematics</td>
<td>M.Math., M.S., Ph.D.</td>
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<td>Microbiology</td>
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<td>Modern Foreign Languages</td>
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<tr>
<td>Music</td>
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<td>Physics</td>
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<tr>
<td>Political Science</td>
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<tr>
<td>Psychology</td>
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<td>Public Administration</td>
<td>M.P.A.</td>
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<td>Sociology</td>
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<tr>
<td>Spanish</td>
<td>M.A.</td>
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<tr>
<td>Speech and Hearing Science</td>
<td>Ph.D.</td>
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<tr>
<td>Speech Pathology</td>
<td>M.A.</td>
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<tr>
<td>Theatre</td>
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<tr>
<td>Zoology</td>
<td>M.S., Ph.D.</td>
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<th>College of Nursing</th>
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<tbody>
<tr>
<td>Nursing</td>
<td>M.S.N., Ph.D.</td>
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<th>College of Social Work</th>
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<tr>
<td>Social Work (Memphis, Nashville, and Knoxville)</td>
<td>M.S.S.W., Ph.D.</td>
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<th>School of Biomedical Sciences</th>
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<tbody>
<tr>
<td>Biomedical Sciences</td>
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<th>School of Library and Information Sciences</th>
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<td>Library Science</td>
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<th>School of Planning</th>
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<tbody>
<tr>
<td>Planning</td>
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</tbody>
</table>
Division of Continuing Education, Knoxville

Dean:
Joseph P. Goddard, Ed. D., Tennessee

Associate Dean:
William D. Barton, Ed. D., Tennessee

Executive Assistant:
Judy B. Constantine

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 four departments: Department of Conferences, English Language Institute, Non-Credit Programs, and the University Evening School. Specific programs and services of each department are described on the following pages.

DEPARTMENT OF CONFERENCES

Assistant Director:
N. Dahlin-Brown, B. of Arch., Tennessee

Conference Consultant:
R. Reynolds, M. S., Tennessee

Coordinators:
W. Brown, M. S. Tennessee
E. Keener, B. A. Temple University
L. Law, B. S. Tennessee
G. Mosby, M. Ed. Texas South. University
G. Trantham, B. S. Tennessee

Staff Assistant:
M. Purdy

UT Conferences, is a department of the Division of Continuing Education, University of Tennessee, Knoxville. UT Conferences provides management services to any individual or group who desires to hold a high quality convention, conference or meeting anywhere in the state of Tennessee. Utilizing the state-wide University system facilities, major hotels and convention centers across Tennessee, UT Conferences provides a unique contribution to continuing education and public service. Programs are custom designed to meet the needs of the participants in order to achieve maximum learning benefits. Affordable services are tailored within the budget guidelines. The overall plan is administered with the participants personal and professional enhancement as the objective. Programs which meet appropriate criteria qualify for Continuing Education Credits. The Division of Continuing Education maintains a record of CEU's earned and provides records upon written request.

Conferences' staff provides professional guidance and management for small group meetings as well as for major conventions of several thousand delegates. Consulting services begin with the initial planning and budgeting. They continue as UT Conferences acts in the sponsor's behalf in negotiating and contracting all arrangements for lodging, food services, speakers, promotional materials, travel, meeting rooms and the myriad of details that must be monitored in order to assure a successful event. The site management team is the first on the scene prior to the event and is prepared to register the early arrivals. Room sets, audio visual equipment, sound systems, refreshment breaks, tours, banquets- every detail is executed as planned and problem solving is made easy through experienced management. A final evaluation after the event reflects a positive performance, a balanced budget and a growth experience for your organization.

This turn-key support allows the sponsors to concentrate on quality of program content and to serve as host to a success.

UT Conferences has joined hands with UT Educational Video and Photography to provide teleconferencing services for the University and community. Professional groups and interested individuals may arrange to receive (downlink) satellite programming on campus or to transmit (uplink) to earth stations around the world.

Additional information may be obtained from the Department of Conferences, 2014 Lake Avenue, or by calling (615) 974-5261.

ENGLISH LANGUAGE INSTITUTE

Director:
Dale A. Myers, Ph. D., Florida

Assistant Director:
Jan G. Hitt, B. A., Tennessee

Instructors:
Anwar F. Accawi M. Ed., Tennessee
Mostafa Rahbar, M. Ed., Tennessee

The English Language Institute (ELI) is a non-credit language-study program of the University of Tennessee, Knoxville. It is designed to assist students in their pursuit of career goals or educational objectives in the United States.

The ELI offers intensive courses for the improvement of student skills in the English language. International students, visitors, and professionals have successfully learned English through study in the ELI.

The courses emphasize the development of communicative ability in listening, speaking, reading, and writing. Faculty members are trained in teaching English to speakers of other languages with differing national backgrounds and varying proficiency in English.

The curriculum consists of eight proficiency levels: 101-108, Introductory through Pre-Academic.
Each level meets 4-5 periods each day with classes from the following:

- English Structure (Grammar)
- Listening Comprehension
- Writing/Composition (Rhetoric)
- Conversation Practice for Communicative Purposes
- Reading and Vocabulary

In addition, classes also assist students in pronunciation, test-taking strategies, U.S., culture orientation, and university study skills.

Additional information may be obtained at 907 Mountcastle Street; telephone (615) 974-3404.

NON-CREDIT PROGRAMS

**Director:**

G. D. Cooper, Ed.D., Tennessee

**Coordinators:**

D. T. Howard, M.S., Tennessee

D. J. von Weisenstein, M.S., Tennessee

The Department of Non-Credit Programs provides a comprehensive array of courses and seminars designed and planned to serve the needs or demands of individuals in Knoxville and surrounding communities, as well as business and industry throughout Tennessee. Most courses are offered on a seasonal term (Fall, Winter, Spring, Summer) basis, in the evening on the University campus and at selected off-campus locations. The quality of these programs is maintained by utilizing University faculty where possible and citizens of the community who have gained a reputation for certain competencies or technical skills. Business seminars are offered to the public in the major cities throughout the state of Tennessee. These can also be delivered "on-site" for business or industrial clients, and instructional services are tailored to the needs of each individual group.

The types of courses offered by the department range from developing personal skills, such as communications, computer literacy, and management development, to human interest courses, such as plants and gardening, health, exercise and fitness. There are also courses which meet certain requirements of the state or other agencies for certification in given fields, such as real estate, aviation, CEBS (Certified Employee Benefit Specialist) and CCA (Certified Credit Administrator). The business seminars range from "hands-on" computer training to topics pertinent to management development for business and industry. "In-house" courses delivered to business and industry help provide for professional development for the assurance of success. The department co-sponsors an ongoing program, the Smoky Mountain Field School, with the Great Smoky Mountains National Park. The School consists of intensive weekend and five-day field courses emphasizing outdoor exploration of the Smoky Mountains.

Continuing Education Units (CEU's) are awarded to students satisfactorily completing courses and seminars offered by the department. 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 transcript of all CEU's earned at The University of Tennessee, Knoxville, may be obtained upon written request.

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 UTC free of charge on a space available basis. Legal verification of either of these conditions is required for enrollment. Additional information may be obtained at 2016 Lake Avenue, Telephone (615) 974-6688.

**UNIVERSITY EVENING SCHOOL**

**Director:**

S. C. Bills, Ed. D., Tennessee

**Associate Directors:**

J. C. Sekula, Ph. D., Tennessee

M. K. Warden, Ed. D., Tennessee

**Assistant Directors:**

L. U. Jurand, M.S., Tennessee

J. R. Rosamond, M.S., Tennessee

**Administrative Assistant:**

B. H. Beeler

**Assistant Professor:**

C. B. Mamatov, Ed. D., Tennessee

**Director, Oak Ridge Resident Graduate Program:**

S. C. Bills, Ed. D., Tennessee

**Assistant Director, Oak Ridge Resident Graduate Program:**

V. Mays, 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**
  - Courses 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:
    - Bachelor of Science in Business with majors in Accounting, General Business, Economics, or Management;
    - Bachelor of Science in Education — Bachelor of Arts with majors in Art, 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 and Venture Analysis. For other majors, consult the appropriate academic department.

- **Mini-Term**
  - The University Evening School offers two Mini-Terms during December/January and May. Students may enroll in one concentrated credit course during the 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 semester offerings; however, these courses may be supplemented with films, team teaching, field trips, in-class projects and specializations of study, affording students an opportunity to immerse themselves in the discipline selected.**

- **Off-Campus Programs**
  - The Evening School conducts a variety of on- and off-campus 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 University. All credit offerings and instructors are approved by the appropriate academic departments, and the credit awarded is resident credit.

- **The College of Education (Off-Campus)**
  - Offers a Bachelor of Science in Education with a major in Vocational-Technical Education and the following graduate degree programs are available: Doctor of Education with a major in Educational Administration and Supervision (Chattanooga); Specialist in Education with a major in Educational Administration and Supervision (Chattanooga); Doctor of Education with a major in Vocational-Technical Education (Chattanooga); Master of Science in Education with a major in Curriculum (Athens); Master of Science in Education with a major in Vocational-Technical Education (Statewide).

- **The Evening School administers an off-campus center at Oak Ridge where courses leading to advanced degrees in science and engineering are offered. At Oak Ridge, graduate students study programs and workshops. Credit workshops are coordinated through various academic departments of the University and provide the opportunity to participate in short periods of intensive study. The Evening School students may earn college credit within a shorter time frame than the traditional semester system. Workshops offer flexibility of timing, location, and content; 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.**

- **Student Services**: A comprehensive program of services is provided by the University Evening School for both on- and off-campus students.

- **Registration**: Registration by mail is offered as a convenience for Evening School students. Secondary registration at both on- and off-campus locations is also available.

- **Advising**: An advising counseling program is available for the benefit of all evening students who need assistance with academic and 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, Business, Education, and Engineering also cooperate 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 in the Evening School Office.

ELDERLY AND DISABLED PERSONS

Legislation gives Tennessee citizens who are 60 years of age or older, or those who are totally disabled, the opportunity to attend courses at the University at no charge on an audit, space available basis. Legal verification of either of these conditions is required for enrollment. Students who are 65 or over, or who are totally disabled, and who desire to receive UT credit for their courses, may pay a reduced charge of $7 per credit hour up to a maximum of $75 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 and University Extension Building on the UTK campus and may be reached by calling (615) 974-5361 or 1-800-334-1724. All inquiries concerning these programs are welcome.
Courses of Instruction

ACCOUNTING

201 Principles of Financial Accounting (3) Introduction to financial accounting theory and practice with emphasis on recognition and reporting of financial information. Prerequisite to all other courses in accounting. Prereq: Mathematics 110 or 121. E

202 Principles of Managerial Accounting (3) Introduction to managerial and cost accounting concepts with emphasis on uses of accounting data by managers in planning operations, controlling activities, and decision making. Prereq: 201. E

311-312 Intermediate Financial Accounting (3,3) Theory, principles, and procedures related to valuation of assets, liabilities and equities; measurement of periodic income; and preparation of financial statements. Prereq: 202 for 311; and 311 with a grade of C or better and Management 303 for 312. E

321 Cost and Managerial Accounting (3) Analysis of costing for products, projects, and management control. Topics include cost behavior, cost prediction, budgeting, and responsibility accounting. Prereq: 202. Prereq or Coreq: Management 303. E


400 Special Topics (3) Critical consideration of selected current topics. May be selected from managerial/cost, financial, systems or auditing. May include written reports and cases. Prereq: 312, 321, and 341 and consent of instructor.

411 Auditing (3) Role of auditing in society, operational auditing, professional auditing standards, auditor's legal responsibilities, audit evidence and reporting, role of internal control and statistical sampling in auditing, applications to specific transaction cycles. Prereq: 312, 341, F, Sp

414 Advanced Accounting (3) Issues and alternatives in advanced theory and problem areas including financial accounting theory, partnership accounting, business combinations, consolidated financial statements, and not-for-profit accounting. Major writing requirement. Prereq: 312, F, Sp

431 Federal Income Taxation (3) Fundamentals of gross income, deductions, credits, and tax determination. Introduction to taxation of corporations and partnerships. Prereq: 311 or consent of instructor. E

ADVERTISING

250 Advertising Principles (3) Survey of the role of advertising in American business and society. Relationship between advertising and marketing: functional components of the advertising process: research, media, creative, and management.

340 Advertising Research Methods (3) Secondary data and primary research techniques for advertising decisions. Prereq: 250 with a grade of C or better and Statistics 201.

350 Advertising Creative Strategy (3) Basic concepts of creative strategy with intensive practice in developing creative platforms, writing and designing advertisements, and judging creative work. Prereq: 250 with a grade of C or better.

360 Advertising Media Strategy (3) Assessment of markets, vehicle audiences and mathematical techniques for advertising planning, instruction in media planning, buying, and evaluation. Prereq: 340 with a grade of C or better.

380 Advertising Professional Seminar (1) Exploration of career choices in mass communications. Resume and letter writing, interviewing, and portfolio preparation. Prereq: Progression as a major in the Department of Advertising.

450 Advertising Management (3) Case-study approach to advertising decisions. Data analysis and interpretation, generating alternative strategies, oral and written presentation of recommendations. Prereq: 350 and 360 with grades of C or better. Open to marketing seniors in the College of Business Administration with consent of Head of Department of Advertising.

470 Advertising Campaigns (3) Group-based development, execution and evaluation of an advertising campaign for a regional or national client. Prereq: 450 with a grade of C or better.

490 Special Topics (3) Detailed study of a specialized area of advertising. Topics vary by semester and include advanced media strategy, advanced creative strategy, direct marketing, and advertising and social issues.

492 Advertising Practicum (1) Experience in a functional area of advertising. Ten hours laboratory each week. May be repeated once. Prereq: Progression as a major in the Department of Advertising. Satisfactory/No credit.

493 Independent Study (1-3) Individual study in a specialized area under the supervision of a faculty member. Prereq: Consent of instructor.

AFRO-AMERICAN STUDIES

201 Introduction to Afro-American Studies (3) Multidisciplinary approach to the Afro-American experience through the Civil War period which examines such issues as traditional African societies, the institution of slavery, the development of Afro-American culture, the beginnings of Afro-American protest tradition, and the Civil War and Reconstruction.

202 Introduction to Afro-American Studies (3) Multidisciplinary approach to the Afro-American experience from the Civil War through the Civil Rights era which focuses on such topics as Afro-American rural and urban societies, the Afro-American church and education and Afro-American intellectual and protest movements.

310 Introduction to Afro-American Music (3) (Same as Music History 310.)

314 Peoples and Cultures of Africa (3) (Same as Anthropology 314.)

315 Afro-American Anthropology (3) (Same as Anthropology 315.)

322 Minority Group Politics in the United States (3) (Same as Political Science 322.)

343 Race and Ethnicity (3) (Same as Sociology 343.)

350 History of Jazz (3) (Same as Music History 350.)

352 Afro-American Religion in United States (3) (Same as Religious Studies 352.)

353 Topics in Afro-American Religion (3) (Same as Religious Studies 353.)

364 Contemporary Issues in Afro-American Education (3) 1954 to the present. Examines issues relevant to the current dilemma of providing quality education for the Afro-American student including professional school quotes, intelligence testing, homogeneous grouping, Afro-American college survival, busing, Black English/Standard English controversy. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

371-372 African History (3,3) (Same as History 371-372.)

373 African Religions (3) (Same as Religious Studies 373 and Anthropology 373.)

379 Geography of Africa (3) (Same as Geography 379.)

420 Families: Race, Class and Culture (3) (Same as Child and Family Studies 420.)
421 Comparative Studies in African and Afro-American Societies (3) Comparative studies of African and Afro-American societies in such areas as education, religion, and social stratification. Includes the respective views African-Americans and Africans have of each other and the concept of Pan-Africanism. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

429 History and Philosphy of Afro-American Education (3) Focuses on attempts by Afro-Americans to secure an education for themselves and their children from the era of slavery to the Supreme Court decision in 1954. Examines black perceptions of the importance of education and special obstacles confronting Blacks who seek education in the primary, secondary, and graduate level. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

431 Research Seminar in Afro-American Studies (3) Teaches basic approaches to the research process and development of research skills. Students design and implement a research project of their choice in the field of Afro-American Studies. Prereq: 201-202 and senior standing. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

445 The Afro-American Experience From the Colonial Period to the Present (3) (Same as History 445.)

450 Issues and Topics in Afro-American Studies (3) Topics vary, but include a variety of problems, issues, and individuals from the field of Afro-American Studies. May be repeated. Maximum 6 hours.

452 African Politics (3) (Same as Political Science 452.)

461 African Prehistory (3) (Same as Anthropology 461.)

473 Black Male in American Society (3) Examines historical images, myths and stereotypes which have developed concerning Black males in American society. Includes the impact of such critical factors as Black feminism, violence, concepts of masculinity, the family, white males, white females, homosexuality, rationalism, and athletics on Black males in America.

480 Black Communities in Urban America (3) Evaluates the benedict and historical influence of three major institutions: the church, the family, and the school upon the Afro-American struggle to survive. Includes political, economic, and social factors utilized by Blacks in developing coping strategies and mechanisms. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

483 Afro-American Women in American Society (3) Focuses on historical and contemporary socio-ecological factors in American society as they relate to women. (Same as Women's Studies 483.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

491 Foreign Study (1-15) Prereq: 201-202 and consent of instructor.

492 Off-Campus Study (1-15) Prereq: 201-202 and consent of instructor.

493 Independent Study (1-15) Prereq: 201-202 and consent of instructor.

496 Biology of Human Variability (3) (Same as Anthropology 496.)

AGRICULTURAL AND EXTENSION EDUCATION

201 Field Experience in Agricultural Education (1) Field experience in public school programs in agricultural and education. Satisfactory/No Credit grading only. Prereq: Consent of instructor. May be repeatable. F, Sp.

205 Agricultural Experience, Leadership and Adult Programs (3) Developing supervised agricultural experience program. Leadership development accomplished through the Future Farmers of America. Role and methods for adult education in agriculture.

209 Principles of Agricultural Economics (3) Application of economic principles to the agricultural industry. Includes the economic aspects of production, processing, and marketing activities. Prereq: Economics 201; Junior standing. F, Sp.


218 Agricultural Marketing (3) Marketing of agricultural products, including production, processing, and transportation. Prereq: Economics 201 and Junior standing. F, Sp.

221 Marketing Principles in Farm Business (3) Analysis of the principles of marketing applied to farm business. Prereq: Economics 201 and Junior standing. F, Sp.

222 Principles of Agricultural Economics (3) Application of economic principles to the agricultural industry. Includes the economic aspects of production, processing, and marketing activities. Prereq: Economics 201; Junior standing. F, Sp.


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235 Principles of Agricultural Economics (3) Application of economic principles to the agricultural industry. Includes the economic aspects of production, processing, and marketing activities. Prereq: Economics 201; Junior standing. F, Sp.


239 Agricultural Marketing (3) Marketing of agricultural products, including production, processing, and transportation. Prereq: Economics 201 and Junior standing. F, Sp.

AGRICULTURAL ENGINEERING TECHNOLOGY

201 Materials and Fabrication (3) Properties of materials including wood, metals, concrete, plastics and lubricants; drafting and blueprint reading; fabrication techniques and processes involving hand tools, power equipment, and arc and gas welding. 1 hour and 2 labs. Sp

202-203 Air Force Aerospace Studies (1,1) Introductions and a survey from a historical perspective starting before the Wright Brothers and continuing into the 1980's.

204-205 Field Training (Academic Program) (1-4) Role of United States military forces in contemporary world, with particular attention to United States Air Force. Emphasis on 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 Exercises throughout the country. Open only to two-year program applicants.

201-202 Air Force Aerospace Studies (3,3) Air Force leadership at junior officer level, including theoretical, professional, and legal aspects, with attention to comprehensive skills, military management functions, principles, and techniques. Prereq: Air Force ROTC approval.

201-402 Air Force Aerospace Studies (3,3) Role and function of professional officer in a democratic society; socialization process, public attitudes, and values orientations associated with professional military service; requires for maintaining national security forces; decision-making processes of Department of Defense; political, economic, and social constraints affecting formulation of U.S. defense policy; impact of technological and international developments upon strategic preparedness; emphasis on developing communicative skills. Prereq: Air Force ROTC approval.

AMERICAN STUDIES

310 Introduction to American Culture: Voices of Dissent (3) Explores dynamics and nature of American culture through discussion of various forms of dissent. Topics include abolition, women's rights, civil disobedience, and nuclear disarmament. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

334 Film and American Culture (3) Same as English 334.

410 Topics in American Culture (3) Content varies. May be repeated once.

ANIMAL SCIENCE

101 Orientation to Animal Science (1) For Animal Science majors and Prévost students in their first year. Discussion of student services, activities, and careers; student participation in planning the college experience. Satisfactory/No Credit. Sp

241 Breeds of Farm Animals (2) Evolution and formation of breeds of cattle, goats, horses, poultry, sheep and swine. Breeding structure, history, development, characteristics, and improvement programs of various breeds and strains. Prospects for purebred industry and impact of crossbreeding programs. 1 hour and 1 lab. Sp

261 Fundamentals of Food Animal Evaluation (3) Structure and production of animal industries. Topics include animal identification, meat and dairy production, and objective techniques for evaluation of beef cattle, dairy cattle, poultry, sheep and swine. Introduction to and utilization of species specific performance programs. 1 hour and 2 labs. F, Sp

281 Farm Animal Health and Management Practices (2) Integration of herd/flock programs and management practices into cattle, horse, poultry, sheep, goats, and swine enterprises. Characteristics and symptoms, prevention and treatment of diseases, internal and external parasites. Government health programs and regulations. Application of animal behavior and management principles to handling, feeding, housing, breeding, showing and sale, record keeping, reproduction and milk management. 2 hours and 2 labs. Sp

321 Anatomy and Physiology of Farm Animals (3) Skeletal and joints; muscles; blood and microcirculation; the nervous, endocrine, cardiovascular, respiratory and integumentary systems. Demonstrations of physical-chemical phenomena. Prereq: Biology 120. 2 hours and 1 lab.
322 The Physiology of Reproduction and Lactation (3) Physiology of male and female, the menstrual cycle, endocrine control of reproduction, the ovum, the fertilized egg, development of the fetus, placental nutrition, fetal circulation, birth, lactation, gametogenesis, ovulation, spermatogenesis, fertilization, embryonic development, implantation, pregnancy, parturition, postpartum changes, and menopause. Prereq: Consent of instructor. May be repeated. Maximum 6 hours. 2 hours and 1 lab. F

483 Pork Production and Management (3) Integration of principles of nutrition, physiology, and marketing into complete pork production and management program. Structure of industry, enterprise establishment, systems of production, production practices, and herd improvement programs. Alternatives evaluated in terms of production responses and economic returns. Prereq: Completion of Animal Science sophomore and junior core courses or consent of instructor. 2 hours and 1 lab. F

484 Poultry Production and Management (3) Structure of the poultry enterprises including rearing, housing, feeding, marketing, and management. Prereq: Senior standing and permission of instructor. Completion of Animal Science sophomore and junior core courses recommended prereq. 2 hours and 1 lab. F

485 Horse Production and Management (3) Integration of principles of selection, nutrition, breeding, physiology and ethology into a comprehensive horse production and management program. Economic importance of the industry, kinds of horse enterprises, management of feed and pasture resources, health maintenance and first aid, breeding and foaling and horse farm structures and equipment. Prereq: Completion of Animal Science sophomore and junior core courses or consent of instructor. 2 hours and 1 lab. Sp

486 Lamb and Wool Production and Management (3) Integration of principles of selection, nutrition, breeding, physiology, and marketing into complete lamb and wool production and management programs. Structure of industry, enterprise establishment, systems of production, production responses and economic returns. Alternatives evaluated in terms of production responses and economic returns. Prereq: Completion of Animal Science sophomore and junior core courses or consent of instructor. 2 hours and 1 lab. Sp

331 Animal Nutrition and Feeds (3) Properties, functions, administration, and deficiency symptoms of essential nutrients; nutritive value, properties and functions of feedstuffs. Prereq: Chemistry 110. 3 hours lecture/week. F

332 Ration Formulation and Linear Programming Applications (3) Nutrient requirements and ration formulation for beef and dairy cattle, sheep, horses, swine, poultry and laboratory animals. Mathematical and computer solutions for formulating complex rations with constraints. Prereq: 331. Math 121 and an introductory computer science course or consent of instructor. 1 hour and 2 labs. Sp

341 Principles of Animal Breeding (3) Genetic and environmental bases of animal variation. Selection and mating systems as mechanisms of genetic change. Platonic selection systems, El Salvadoran, and swine; historical domestic species. Prereq: Biology 220. 2 hours and 1 lab. F


362 Dairy Cattle Judging and Selection (2) Comparative judging, oral reasons, breed classification programs, economic value of conformation traits. Prereq: 261. 2 labs. Sp

363 Judging Poultry and Poultry Products (2) Grading of poultry and poultry products according to USDA standards; factors influencing quality. Prereq: 261 or consent of instructor. 2 labs. Sp

364 Horse Selection and Judging (2) Selection of horses for soundness and functional efficiency and the ability to perform and to function in various breeds of horses. 2 labs. Sp

421 Applied Reproduction in Farm Animals (3) Collection, evaluation and preservation of ova, spermatozoa and embryos; application of methods of natural breeding and techniques of artificial insemination and embryo transfer; herd sire and dam evaluation; pregnancy determination; gestation and parturition; infertility; recent advance in theriogenology. Prereq: 322 and consent of instructor. 1 hour and 2 labs. F

481 Beef Cattle Production and Management (3) Integration of principles of nutrition, physiology, and breeding into complete beef cattle management programs. Structure of industry, enterprise establishment, systems of production, production practices, and herd improvement programs. Alternatives evaluated in terms of production responses and economic returns. Prereq: Completion of Animal Science sophomore and junior core courses or consent of instructor. 2 hours and 1 lab. Sp

482 Dairy Cattle Production and Management (3) Integration of principles of nutrition, physiology, and breeding into complete dairy cattle management programs. Structure of industry, enterprise establishment, systems of production, production practices and herd improvement programs. Alternatives evaluated in terms of production responses and economic returns. Prereq: Completion of Animal Science sophomore and junior core courses or consent of instructor. 2 hours and 1 lab. F

Anthropology

110 Human Origins (3) Survey of humanity's back- ground, fossil primates, fossil human remains, and living races of humans. 2 hours and 1 lab.

120 Prehistoric Archaeology (3) Introduction to meth- ods and techniques used to identify and date archaeological cultures, reconstruct past lifeways and describe cultural evolution. Overview of the prehis- tory of the Americas; prehistoric research in Tennessee and survey of prehistoric Indian cultures from initial occupation of the site to European contact. 2 hours and 1 lab. Sp

230 American Cultures (3) Anthropology in the study of American Indian communities, communities, social classes, power structures, etc. 2 hours.

302 Religion of Primitive Peoples (3) (Same as Reli- gious Studies 302.)

306 Genetics and Society (3) (Same as Botany 306.)

310 North American Indians (3) Comparative over- view of Indian cultures of North America. Topical coverage ranges from prehistory and aboriginal life- styles to problems of reservation living and acculturation. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

311 Southeastern Indians (3) Survey of Southeast- ern Indian cultures at the time of European contact. Emphasis on Cherokee culture and on the social, economic, and religious organization of abo- riginal groups. Prereq: 130 or consent of instructor.

312 Appalachian Culture (3) Traditional Southern Appalachian subsistence patterns and economy. Social organization, beliefs and values, folklore and cus- toms; socio-cultural impacts of industrialization and modernization. Prereq: 130 or consent of instructor. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

313 Peoples and Cultures of Mesoamerica (3) Pre- Columbian and Hispanic cultures of Mexico, Guate- mala, El Salvador and Honduras. Patterns of cultural continuity and cultural change throughout Mesoamerica's history. Prereq: 130 or consent of instruc- tor. (Same as Latin American Studies 313.) Writing- emphasis course: at least one in-class essay examina- tion and 3000 words of writing outside the classroom.

314 Peoples and Cultures of Africa (3) Ethnographic survey of peoples of sub-Saharan Africa, focusing on cultural diversity, human ecology, and contemporary issues. Prereq: 130 or consent of instructor. (Same as Afro-American Studies 314.) Writing-emphasis course at least one in-class essay examination and 3000 words of writing outside the classroom.

315 Afro-American Anthropology (3) Anthropologi- cal perspectives on lifestyles and social status of persons of African descent in North America, South America, and the Caribbean. Prereq: 130 or consent of instruc- tor. (Same as Afro-American Studies 315.) Writing- emphasis course: at least one in-class essay examina- tion and 3000 words of writing outside the classroom.

360 North American Prehistory (3) Prehistoric cul- tures of North America from initial occupation of the continent to European contact. Writing-emphasis course at least one in-class essay examination and 3000 words of writing outside the classroom.

361 Historical Archaeology (3) Historical archaeo- logy of Euro-American, Afro-American, and Asian American cultures in the United States from 15th to 20th centuries.

362 Principles of Archaeology (3) Research strate- gies used in developing method and theory, constructing cultural histories, identifying site function and settle- ment subsistence patterns, and evaluating explanations of cultural change. Prereq: 120 or consent of instruc- tor.

373 African Religions (3) (Same as Religious Studies 370 and Afro-American Studies 373.)

400 Readings in Anthropology (1-6) Problem- oriented directed reading. Prereq: Anthropology majors with senior standing or consent of instructor. May be repeated. Maximum 6 hours.

410 Principles of Cultural Anthropology (3) Explora- tion of stratification, functional and structural analysis, and methods in cultural anthropology, with application to analysis of specific ethnographies. Prereq: 130.

411 Linguistic Anthropology (3) Basic linguistic con- cepts applied to research in cultural anthropology, particularly investigating language and culture. Prereq: 130 or Linguistics 200. (Same as Linguistics 411.)
412 Folklore in Anthropology (3) Introduction to anthropological study of folklore, using folklore and folklore materials from various tribal, peasant, and complex societies. Prereq: 130 or consent of instructor.

413 Dynamics of Culture (3) Definition and in-depth study of major forms of culture change, ranging from evolution and diffusion to religious revitalization and political revolt. Continuity and change in diverse cultural settings examined through use of archaeological, ethnohistoric, and ethnographic cases. Prereq: 130.

410 Fieldwork in Archaeology (3-9) Practicum work in archaeological data recovery and analytical techniques. Prereq: Consent of instructor. May be repeated. Maximum 9 hours.

440 Cultural Ecology (3) Concepts and methods in studying dynamic interaction between prehistoric and present day cultures and their environments. Topics include ecological theory, methods of analysis, and review of selected case studies. Prereq: 120, 130, 410, or consent of instructor.

450 Current Trends in Anthropology (3) Analytical, integrative review of current directions of research and theory in anthropology.

460 Selected Topics in Archaeology (3) Regional or theoretical issues in archaeology for undergraduate students. Topics may include practical experience in laboratory study of archaeological materials. May be repeated. Maximum 6 hours. Prereq: 120 or consent of instructor.

461 African Prehistory (3) African cultural history from the earliest evidence of human activity to the time of European contact. Emphasis on the stone age of Africa south of the Sahara. Prereq: 120 or consent of instructor. (Same as Afro-American Studies 461.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

462 Early European Prehistory (3) Origins and evolution of human culture in Europe through the beginnings of settled life. Primary focus on Paleolithic/Mesolithic chronology and lifeways. Prereq: 120 or consent of instructor. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

463 Rise of Complex Civilizations (3) Development of complex societies in Old World from origins of agricultural economics to rise of States. Focus on Mesolithic, Neolithic, and Metal Age lifeways in Africa, Europe, and Asia. Prereq: 120 or consent of instructor. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

464 Principles of Zooarchaeology (3) Basic osteological studies of major vertebrate groups, with emphasis on the aboriginal's use of animals in subsistence and culture. Identification and interpretation of archaeological material derived from molluscan and vertebrate remains, with introduction to laboratory use of comparative collections. Prereq: 120 or consent of instructor.

480 Human Osteology (4) Intensive examination of the human skeleton. Prereq: 110 or consent of instructor. 3 hours and 1 hour lab.

481 Museology I: Museums, Purpose and Function (3) (Same as Art 481.)

482 Museology II: Exhibition Planning and Installation (3) (Same as Art 482.)

484 Museology III: Field Projects (1-12) (Same as Art 484 1)...

490 Primate Evolution (3) Living and fossil primate taxonomy, ecology, and comparative anatomy. Survey of primate fossil record with emphasis on the origin or major primate lineages. Prereq: 110.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

494 Primate Behavior (3) Social organization and behavior of selected primates including group composition, size, structure, patterns of mating; other social interactions; communication; and cultural behavior. Application of primate studies to human ethology. Prereq: 110 or consent of instructor.

495 Human Paleontology (4) Introduction to human fossil record from the earliest human remains to the earliest representative of modern human form. Prereq: 110.

496 Biology of Human Variability (3) Introduction to human populations; human adaptation, biological features of major cultural groups, relationships of major groups to one another. (Same as Afro-American Studies 496.)

ARCHITECTURE

101 Introduction to Architecture (3) Scope and definition of architecture in relation to contemporary society, building industry, and allied design professions. Architectural design as a creative process. Orientation to courses and programs of the college.

102 Visual Design (2) Principles of visual design and techniques of representation. Coreq: 172. Sp

111 Architecture and the Built Environment (3) An introduction to architecture and the built environment for non-architecture majors. Significance of our surrounding forces that create them: Creative aspects of design. Survey of examples from local to global. Strategies for individual and collective involvement.

171 Design Fundamentals I (3) Definition, ideas, and processes of design. Sketch design studies and free-hand drawing. Introduction to drafting techniques; graphic and visual skill development. Coreq: 101. F


203 Second Degree Program: Seminar II (2) Theory and practice in architecture. Selected readings in history, theory, and design methodology with emphasis on contextual issues and architectural ordering principles. Coreq: 261. F

204 Second Degree Program: Seminar II (2) Selected readings in history, theory, and design methodology with emphasis on structural elements and architectural exemplars. Prereq: 203. Coreq: 282. Sp

211 History of Architecture I (3) Architectural thought and ideas of building and community form. Ancient times to the Renaissance. Prereq: History 151, 152. F

212 History of Architecture II (3) Architectural thought and ideas of building and community form. Renaissance to mid-twentieth century. Prereq: 211. Sp

213 History and Theory of Contemporary Architecture (3) Architectural thought in design practice in late twentieth century. Examples of contemporary works and review of theoretical issues. Prereq: 212. F

231 Computer Applications in Architecture (3) Survey of the role of the computer in architecture, its potentials and limitations. Recent developments in computer graphics with specific applications and demonstrations. F

232 Introduction to Architectural Technology (3) Place of building technology in architectural design. Introduces concepts and theory of structures; building materials and construction; and environmental controls. Sp


312 Materials and Methods of Construction (3) Properties of interior and exterior building materials and their relation to construction methods and detailing. Theory of material selection and application and the role of materials and methods play in the design process. Prereq: 232. Sp

323 Advanced Computer Applications (3) Computer applications in architecture, with special emphasis on structural calculations. Prereq: 231.


332 Architectural Structures II (4) Continuation of Analysis and design of simple structures of steel, wood and concrete based upon specific loading requirements. Use of construction and building codes, handbooks and design - selection of structural members. Prereq: 331. Sp

333 Advanced Structural Design I (3) 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: 332 or equivalent.

334 Advanced Architectural Structures I (3) Structural design in relation to materials and form. Advanced mathematical and experimental analysis of structures, including use of computer programs. Prereq: 323 or equivalent.


336 Advanced Design of Concrete Buildings (3) Pre-cast and on-site concrete construction and maintenance, foundations, floor and wall systems. Domes and shell roofs. Prereq: 323 or equivalent.

341 Environmental Control Systems I (4) Heating, ventilating, and air-conditioning systems, with emphasis on passive and active solar energy systems. Plumbing and fire protection systems. Prereqs. 231 and 232. F


400 Service Practicum (8) Experience in architectural or equivalent office for a minimum of 3 months to be completed prior to fifth year entry. E

403 Introduction to Preservation (3) History, theory, and legal aspects of architectural preservation and restoration.

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

405 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.
406 Ideas in Architecture (3) Historical and critical review of design ideas and architectural thought. Prerequisite: Consent of instructor. (Same as Art 406.)

435 Planning and Design of Tall Buildings (3) Architectural, urban, and structural design considerations in design of tall buildings. Environmental and service systems; wind, fire and earthquake resistance; structural and construction considerations; building standards; steel, concrete, and masonry structures; foundations. Prerequisite: Consent of instructor.

443 Building Energy Analysis (3) Balancing heat flow through external skin of residential and small and large commercial buildings will be evaluated; site planning, building size and orientation, window area, wall treatment, infiltration control. Energy use quantified by actual measurement for energy efficiency of design features. Architectural program analysis of external and internal load dominated buildings. Prerequisite: 434.

444 Advanced Environmental Control Systems (3) In-depth analysis and innovative concepts in design of heating, ventilating, and air conditioning. Prerequisite: 434.

445 Advanced Lighting (3) In-depth analysis and innovative concepts in design of lighting. Prerequisite: 434.

462 Professional Practice (4) Management and organizational theories and practices of delivering professional design services. Included are assessment of the building industry and its influence on practice; analysis of the basic management functions within professional firms; and legal and ethical concerns facing practitioners today. Special obligations and privileges of the design professional. Prerequisite: Consent of instructor.

463 Architectural Development (3) Principles and practice of the architect as a developer. Impact of economics, finance and urban policy on the design and development of real estate. Open to all students.

464 Project and Construction Management (3) Principles, methods, and application of project and construction management in the building process. Project manager's and construction manager's function, responsibilities, and activities investigated through case studies. Methods and theories of estimating project cost and building cost in current practice. New techniques of cost analysis.


466 Marketing Services (3) Theories of marketing for architectural practice. Case studies. Public relations procedures.

469 Codes, Zoning, and Fire Protection (3) Theory, review, and application of zoning, building codes, and national codes and zoning. History and development of fire safety and building codes; history and development of zoning emphasizing architect's responsibility for specific project application. Characteristics of fires in buildings. Fire codes, building evacuation, sprinklers and other fire protection systems. Emergency power and lighting. Fire resistant materials and construction.

471 Architecture Design V (6) Design project from concept through design development phase. Specification of component building systems including structure, mechanical, lighting and construction details. Prerequisite: 470.

472 Architectural Design VI (6) Order and form in complex buildings developed to address programmatic, structural, energy, and environmental issues. Prerequisite: 471.

473 Architectural Photography (3) Photography as a design, research, and presentation medium. Application of photography to conceptual development, printing and processing. Color, black and white.

480 Comprehensive Design Project I (3) Project selection and preparation for Architecture 482. Formation and documentation of hypotheses. Preparation of background information. Goals and concepts established. To be taken semester immediately preceding 482.

481 Advanced Architectural Design Topics (6) Special area which affects architectural design, such as alternative approaches to design, energy, urban design, urban development, structural, historic preservation, and ecological design. Work from this program may relate to the student's Comprehensive Design Project. Prerequisite: 472. Certain architectural electives may be stipulated as prerequisite for specified sections.

482 Comprehensive Design Project II (6) Student selected project under faculty direction. Exploration of design hypotheses and character of a substantial building design. (See Architecture 480.) Completion project will address all issues of environment, structure, enclosure, and site design. Project selection and development of design appropriateness. Design is expected to stand up to rigorous scrutiny regarding strength of idea, economy of means, durability, validity for stipulated use, quality of cultural expression, and character of setting. Prerequisite: 480 and satisfactory completion of all design courses. Prerequisite: Consent of dean.

ART


102 Studio Fundamentals: Two Dimensional Design (2) Surface composition and color. Primarily for art, architecture, interior design, and art education majors.

103 Studio Fundamentals: Three Dimensional Design (2) Projects dealing with real space and three dimensional materials. Primarily for art, architecture, art education, and interior design and housing majors.


105 Fiber: Three Dimensional Non-Woven Structures (3) Contemporary approaches to fiber art including experimentation and experimentation with various fiber media and techniques in development of sculptural fiber forms.

106 Introduction to Metalsmithing and Jewelry (3) Basic metalworking and jewelry fabrication techniques including reousseau, annealing, forging, chasing, embossing, clamping, drawing, rolling, sinking, soldering, fusing, polishing, and patination with individual studio problems to develop a personal style of expression.

107 History of Graphic Design/Illustration (2) Major movements and artists in the development of art directors, 1850 to the present, and their impact on current graphic design trends. (Does not apply to art and design history requirement.)

108 Basic Printmaking (3) An introductory survey of printmaking with studio experience in xerography, monotype, cliche' verre, relief and collotype.


172 Western Art I (3) Major monuments in Western Art with emphasis on Europe from prehistory through the Middle Ages. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.
Courses of Instruction

173 Western Art I (3) Major monuments in Western Art, emphasis on Europe and America from 1400 to the early 20th century. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

176 Experiencing Art (3) Form and meaning in the visual arts. Lecture-discussion. Especially for non-majors.

183 Asian Art (3) Art of Central and Southeast Asia, India, China, Korea, and Japan from prehistory through common Buddhist forms and into modern media. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

191 Introduction to Studio Art: Various Media (3) Individual sections for various artistic disciplines. For non-majors only. Course may be repeated, medium may not be repeated. Maximum 12 hours. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

192 Intermediate Design and Color (3) Further exploration of basic techniques of two-dimensional design, with emphasis on color theory and technique. Prereq: 101, 102, 103.

201 Fabric: Painting and Dyeing (3) Painting and dyeing processes in the development of surface design on fabric, including batik, direct drawing, and/or other related approaches.


204 Fiber: Woven Wall Works (3) Fabrication of woven wall forms on the vertical loom, with emphasis on experimental use of fiber media in development of architecturally scaled wall works.

206 Enameling (3) Metalworking and jewelry techniques emphasizing integration of casting and fabrication methods (including stonsetting, fastenings, and mechanisms) with individual studio problems to develop a personal style of expression. Prereq: 106. May be repeated. Maximum 6 hours.

208 Special Topics in Fiber and Fabric (3) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.


211 Drawing II: Life Drawing (3) Development of drawing and observational skills with special emphasis on structure and dynamics of the human figure and of the figure in environment. Prereq: 211. May be repeated. Maximum 6 hours.

213 Painting I: Introduction (3) Capacities of oil and acrylic media for creative expression. Prereq: 101, 102, 103 for art majors; none for non-art majors.

214 Painting II (3) Techniques of expression in oil and/or acrylic. Prereq: 213 for art majors; 191-Painting for non-art majors. May be repeated. Maximum 6 hours.


216 Watercolor II (3) Capacities of transparent watercolor, with attention to individual exploration of surface, space, and color. Prereq: 215 for art majors; Art 191-Watercolor for non-art majors. May be repeated. Maximum 6 hours.

218 Special Topics in Drawing/Painting (3) Student or instructor-initiated course offered at convenience of department to enhance and expand the painting, drawing, and watercolor curriculum. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

221 Ceramics I: Handbuilding (3) All ceramic handbuilding techniques including forming methods, glazing, clay preparation, firing, small and large scale pieces. Ceramic history through slide lectures.

222 Ceramic II: Throwing (3) Thrown ceramic forms including functional utilitarian pottery techniques, glazing and firing methods. Prereq: 221 for art majors; 191-Ceramics for non-art majors.

229 Special Topics in Ceramics (3) Student or instructor-initiated course to be offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

231 Photography I (3) Art of black and white photography. Field and studio shooting, history of photography, basic developing, and enlarging techniques.

232 History of Photography (3) Photography as a fine art. Emphasis on work of Steiglitz, Strand, Weston, and White. (Does not apply to art history requirement.) Prereq: 231.

239 Special Topics in Photography (3) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

241 Sculpture I (3) Problems which explore basic materials and techniques including clay modeling, plaster construction, moldmaking. Limited work in plastic, wood, or metal.

242 Life Sculpture I (3) Modeling techniques in clay and wax, working from figure. Possibilities of expression with human figure as subject. Modeling process as both observational and material handling technique. Prereq: 101, 102, 103, or consent of instructor. May be repeated. Maximum 6 hours.

243 Metal Cast Sculpture I (3) Metal casting methods in bronze or aluminum. May include lost wax, styrofoam sand, ceramic shell casting methods. May be repeated. Maximum 6 hours.

244 Wood Sculpture I (3) Wood as sculptural medium. May include use of hand and power tools, carving, and construction.

245 Steel Sculpture I (3) Problems to introduce steel as a material for the creation of sculpture. Development of welding techniques.

246 Mixed Media Sculpture I (3) Use of two or more materials, and a variety of sculptural techniques, joined in exploration of the human figure and of the figure in environment. Prereq: 245. May be repeated. Maximum 6 hours.

251 Beginning Graphic Design (3) Survey of graphic design; tools, materials, techniques; lettering, and use of type; layout and design. Prereq: 101, 102, 103.

252 Production (3) Design and layout; practice of mechanical preparation of art for various printing processes; skills and craftsmanship emphasized. Prereq: 251.

253 Advertising Design (3) Fundamentals of lettering and layout for newspaper, magazine, television, outdoor advertising. Non-art majors only.

254 Woodcut Portfolio Review (0) Review of prior woodcut work. Successful completion required prior to registration for junior and senior courses. Prereq: Consent of department. Satisfactory/No credit only.

255 Mixed Media Sculpture II (3) Continued exploration of the human figure and of the figure in environment. Prereq: 254. May be repeated. Maximum 6 hours.

257 Films of Art History (3) Film and video filmmaking. Emphasis on graphic elements through use of motion picture camera.

259 Special Topics (3) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

260 Inter-area Portfolio Review (3) Review of prior portfolio work. Successful completion required prior to registration for junior and senior courses. Prereq: Consent of department. Satisfactory/No credit only.

261 Drawing III (4) Development of personal drawing techniques and concepts through class problems. Prereq: 212 and 312 or consent of instructor. May be repeated. Maximum 8 hours.

262 Drawing Portfolio Review (3) Review of prior work in drawing. Successful completion required prior to registration for junior and senior courses. Prereq: Consent of department. Satisfactory/No credit only.

263 Painting III (4) Individual expression with varied media. Prereq: 214 and 314 or consent of instructor. May be repeated. Maximum 8 hours.

264 Watercolor Portfolio Review (3) Review of prior work in watercolor. Successful completion required prior to registration for junior and senior courses. Prereq: Consent of department. Satisfactory/No credit only.

265 Watercolor III (4) Individual expression with varied water-based media on paper. Prereq: 216 and 316 or consent of instructor. May be repeated. Maximum 8 hours.

266 Ceramics Portfolio Review (3) Review of prior work in ceramics. Successful completion required prior to registration for junior and senior courses. Prereq: Consent of department. Satisfactory/No credit only.


331 Photography II (4) Individual expression in photographic medium. Prereq: 331. May be repeated. Maximum 8 hours.

332 Studio Photography (4) Introduction to photography in studio; lighting, view cameras, background setups, Polaroid materials. Prereq: 331.


334 Photographic Techniques Workshop (4) Theories and practices of film exposure and development. Introduction to zone system. Prereq: 331.

340 Sculpture Portfolio Review (0) Review of prior work in sculpture. Successful completion required prior to registration for junior and senior courses. Prereq: Consent of department. Satisfactory/No credit only.

341 Sculpture II (3) Further exploration and development of sculptural concepts and materials. Prereq: 240 and 340. May be repeated. Maximum 8 hours.

342 Life Sculpture II (3) Advanced modeling techniques including clay, wax working from the figure. Includes casting a minimum of one piece. Prereq: 242 and 340 or consent of instructor. May be repeated. Maximum 6 hours.


344 Wood Sculpture II (3) Extension of skills and techniques begun in 244. Prereq: 244 and 340 or consent of instructor. May be repeated. Maximum 6 hours.

345 Steel Sculpture II (3) Further exploration of construction in steel and other metals. Prereq: 245 and 340.

346 Mixed Media Sculpture II (3) Further problems in the sculptural use of two or more distinctive materials. Prereq: 246 and 340.

350 Graphic Design/Illustration Portfolio Review (0) Review of prior work in graphic design illustration. Successful completion required prior to registration for junior and senior courses. Prereq: 252 or consent of instructor. Satisfactory/No credit only.


352 Corporate Design (3) Concepts of corporate graphic problems. Includes all areas of graphic design and illustration. Prereq: 351.

353 Black and White Illustration (3) Black and white media and techniques as applied to product and editorial illustration. Prereq: 350.

354 Color Illustration (3) Flat and process color media and techniques as applied to product and editorial illustration. Prereq: 353.


356 Introduction to Computer Enhanced Design (1) The computer as a graphic design tool. Prereq or Coreq: 356.

360 Printmaking Portfolio Review (0) Review of prior work in printmaking. Successful completion required prior to registration for junior and senior courses. Prereq: Consent of department. Satisfactory/No credit only.

362 Intaglio II (4) Color intaglio printing from a single metal plate, including a la poupée, chine colle' and relief rolls. Prereq: 262 and 360. May be repeated. Maximum 8 hours.

363 Lithography II (4) Color lithography from stone and plates using mylar registration. Extra techniques; including xerox and monotype transfers, acid tinting, reversals, chine colle' and photo-lithography. May be repeated. Maximum 8 hours.

364 Screen Printing II (4) Advanced work with basic screen printing techniques including photo-screening, emphasis upon image development and personal concept. Prereq: 264 and 360. May be repeated. Maximum 6 hours.

371 Early Christian and Byzantine Art, to 1350 (3) Art in Italy and the Eastern Empire from the beginnings of Christian art to c. 1350. Mosaic and painting, sculpture and architecture. (Same as Medieval Studies 371.)

372 Northern European Painting, 1350-1600 (3) From courtly art of late Middle Ages to Northern Renaissance. Jan van Eyck, Roger van der Weyden, and Durer; early printmakers. (Same as Medieval Studies 372.)

374 Art of Northern Europe, 1600-1675 (3) Concentrated study of Bruegel, Rubens, Rembrandt, Georges de La Tour, Vermeer, Poussin, and Hals.

375 History of Modern Sculpture in Europe and America (3) From 1800 to 1900: Neoclassicism to Rodin. From 1900 to present: emphasis on Cubism. Construction, Expressionism, Pop, Primary Forms, Environments, and Earthworks.

381 Medieval Art of the West, 800-1400 (3) Western European art of the "Dark Ages," Romanesque, and Gothic periods. (Same as Medieval Studies 361.)

382 The Art of Italy: 1250-1450 (3) Development of exploration of naturalism. Revival of antiquity and development of theories of perspective in the Early Renaissance. Including Duccio, Giotto, Masaccio, Donatello, Botticelli. (Same as Medieval Studies 382.)


384 Art of Southern Europe: 1575-1700 (3) Concentrated study of Caravaggio, Bernini, and Italian Baroque developments in all media. Spanish Baroque painting and sculpture with special attention to Velazquez.

385 Chinese Art (3) Survey from pre-Shang Dynasty to contemporary movements in China, Taiwan, and Hong Kong. New discoveries are stressed. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

386 Japanese Art (3) Survey from ancient Joman art in clay to the Mingei movement today. Variety of media emphasized. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

392 Film Design (3-6) Theory and practice of film making. Prereq: 331. May be repeated. Maximum 12 hours.

396 Beginning Airbrush (3) Techniques of airbrush drawing; skills and creative applications emphasized. For art majors only.

401 Fiber: Advanced Projects (3-6) Prereq: 302 or consent of Instructor. May be repeated. Maximum 12 hours.

402 Fabric: Advanced Projects (3-6) Prereq: 301 or consent of instructor. May be repeated. Maximum 12 hours.

404 Intermediate Computer Enhanced Design (3) Exploration of computer systems, software and techniques. Prereq: 356 or consent of instructor.

405 Advanced Computer Enhanced Design (3) Prereq: 404 or consent of instructor. May be repeated. Maximum 6 hours.

406 Goldsmithing (3-6) Advanced metal smithing techniques including granulation, electroforming, electroplating, anodization, and photo processes with individual student problems to develop a personal style of expression. Prereq: 8 hours of metal smithing or consent of instructor. May be repeated. Maximum 12 hours.

409 Special Topics in Fiber/Fabric (3) Student or instructor-initiated course offered to convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

411 Drawing IV (6) Individualized pursuit of personal drawing techniques and concepts, supplemented by individual and group critiques and weekly life drawing sessions. Prereq: 311. May be repeated. Maximum 12 hours.

413 Painting IV (6) Advanced painting stressing individual concepts and personal expression with varied media. Prereq: 313. May be repeated. Maximum 12 hours.


419 Special Topics in Drawing and Painting (3) Student or instructor-initiated course offered at convenience of department to expand and enhance the painting, drawing, and watercolor curriculum. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

421 Ceramics: Individual Projects (3-6) Special topic each semester, e.g., low fire ceramics, alternative firing methods, specialized clay techniques. Individual direction. Prereqs: 321 and 322. May be repeated. Maximum 12 hours.

422 Ceramics: Advanced Projects (3-6) Each student is responsible for developing a thematic investigation of a specific concept using appropriate methods, materials, etc. Individual direction. Prereqs: 321 and 322. May be repeated. Maximum 12 hours.

423 Ceramics: Surface Design (3) High and low fire glaze techniques. Use of stains, slips, underglazes, airbrush, and lusters, etc. Relationship between form and surface emphasized. Individual direction expected. Prereqs: 321 and 322.

424 Ceramics: Clay and Glazes (3) Clay chemistry, clay bodies, glaze theory, glaze calculation, intensive formulating, mixing and testing of clay bodies and glaze formulas. Prereqs: 321 and 322.

425 History of Ceramics Seminar (3) Survey of the history of ceramics from ancient through contemporary. Emphasis on ceramics sculpture, and the vessel aesthetic. Slide lectures and individual presentations. (Does not apply toward art history requirement.) Prereqs: 321 and 322.


429 Special Topics in Ceramics (3) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.


439 Special Topics in Photography (3) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

441 Advanced Sculpture (3-6) Individual development of sculptural problems and techniques. Prereq: 8 hours of 300 level sculpture. May be repeated. Maximum 12 hours.

449 Special Topics in Sculpture (3) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.


ART EDUCATION

300 Art for the Elementary Classroom Teacher (2) Methods of teaching art in elementary classrooms including developmental theory, philosophical concerns and selected media experiences. F

301 Foundation of Art Education (3) Basic philosophy and structure including directed learning activities in two and three dimensional design, art appreciation, and teaching methodology. F, Sp

302 Concepts of Drawing and Painting (3) Processes in teaching of drawing and painting including consideration of pertinent literature and research. F, Sp

303 Concepts of Sculpture and Crafts (3) Processes in teaching of sculpture and crafts including pertinent literature and research. Prereq: 301 and admission to Teacher Education Program, F

304 Concepts of Printmaking, Graphic Design and Lettering (3) Processes in teaching printmaking, graphic design and lettering including pertinent literature and research. Prereq: 301 and admission to Teacher Education Program. Sp

350 Field Experience (1) Tasks related to teaching and to teacher roles. May be repeated. Maximum 2 hours. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only. Sp

400 Curriculum Planning and Teaching Strategies (3) Program development, instructional methods, professional literature, contemporary issues, simulation and micro teaching situations. Prereq: 301 and admission to Teacher Education Program. F, Sp

410 Pre-internship Seminar (1) Orientation describes the objectives and policies of the internship program. May be completed the term immediately preceding the internship. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only. Sp, Su

481 Internship I: Grades K-12 (3-6) Test of materials and theories of teaching. Internship is completed in local public schools. Students must be made upon admission to Teacher Education Program. Prereq: 410 and admission to Teacher Education Program. Satisfactory/No Credit only. F

482 Internship II: Grades K-12 (3-6) Demonstration of professional competence in planning, instruction and classroom management. Internship is completed in local public schools. Prereq: 481 and admission to Teacher Education Program. Satisfactory/No Credit only. Sp

490 Special Topics (3) May be repeated. Maximum 6 hours.

493 Independent Study (3) May be repeated. Maximum 9 hours.

ASIAN STUDIES

101-102 Asian Civilization (3,3) Comparative study of development of religion, social institutions, and high culture in India, China, Japan, and the Islamic world. 101-Rise of classical civilizations. 102-Traditional culture and their modern developments. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.
121-122 Elementary Modern Standard Arabic I, II
(5,5) Literary Arabic, language of the press, broadcasting, literature and formal situations. Meets every day, three days with instructor and two with native informant in addition to language lab. Must be taken in sequence.

131-132 Elementary Chinese I, II, (5,5) Must be taken in sequence.

141-142 Elementary Modern Hebrew I, II (4,4) Taped language program. Must be taken in sequence.

151-152 Elementary Japanese I, II, (5,5) Must be taken in sequence.

161-162 Elementary Persian (4,4) Taped language program. Must be taken in sequence.

221-222 Intermediate Modern Standard Arabic I, II
(5,5) Literary Arabic, the language of the press, broadcasting, literature and formal situations. Meets every day, three days with instructor and two with native informant in addition to language lab. Must be taken in sequence. Prereq: 121-122 or equivalent or consent of instructor.

231-232 Intermediate Chinese I, II, (5,5) Prereq: 131-132 or equivalent or consent of instructor. Must be taken in sequence.

241-242 Intermediate Modern Hebrew I, II (4,4) Taped language program. Prereq: 141-142 or equivalent or consent of instructor. Must be taken in sequence.

251-252 Intermediate Japanese I, II, (5,5) Prereq: 151-152 or consent of instructor. Must be taken in sequence. Prereq: 121-122 or equivalent or consent of instructor. Must be taken in sequence.

311-312 Chinese Literature in English Translation (3,3) 311-321 Classical literature. 312-Veracular and modern literature. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

313-314 Japanese Literature in English Translation (3,3) 313-Classical/traditional: masterpieces of poetry, fiction, and the universe. 314-Modern: masterpieces of fiction since 1850. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

316 The Literature of India in English Translation (3) Major genres and masterpieces of Indian literature—epic poetry, drama, court poetry, modern novel. Concentration on ancient and classical periods of Indian literary history.

319 Islamic Literature in English Translation (5) Selections from the Koran, classical Arabic and Persian poetry, and classical Arabic, Persian, and Turkish prose, including history, philosophy, mysticism, and belles-lettres.

321 Spoken Lebanese-Palestinian Arabic (4) Infor-
mal Arabic for use in daily life. Emphasis on appropriate response and understanding of cultural context. All work is oral, including exams, but grammatical analysis is based on standard (written) Arabic. Prereq: 121-122 or consent of instructor.

322 Advanced Modern Standard Arabic (4) Advanced grammar and readings in modern Arabic. Prereq: 221-222 or consent of instructor.

331-332 Advanced Chinese I, II, (4,4) Prereq: 231-232 or equivalent or consent of instructor. Must be taken in sequence.

351-352 Advanced Japanese I, II, (4,4) Includes conversa-
tion, drill, and composition practice with native speaker as well as reading and translation. Prereq: 251-252. Must be taken in sequence.

421 Readings in Islamic Literature (3) Prereq: Mas-
tery of intermediate-level of Arabic or consent of instructor. May be repeated. Maximum 9 hours.

431 Readings in Chinese Literature (3) Prereq: Mas-
tery of intermediate-level of Chinese or consent of instructor. May be repeated. Maximum 9 hours.

451 Readings in Japanese Literature (3) Prereq: Mas-
tery of intermediate-level of Japanese or consent of instructor. May be repeated. Maximum 9 hours.

471 Selected Topics in Asian Studies (3) Content varies. May be repeated. Maximum 9 hours.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

ASTRONOMY

151-152 Introductory Astronomy (4,4) Survey of the composition, structure, and dynamics of the universe which introduces the basic vocabulary of astronomy and scientific method. Components of the solar system include results from interplanetary exploration; hypotheses and theories of the origin and evolution of our solar system. Classes include lectures and laboratory work. Meets every day, three days with instructor and two with native informant in addition to language lab. Must be taken in sequence. Prereq: 121-122 or equivalent or consent of instructor. May be repeated. Maximum 9 hours.

161-162 Introductory Astronomy with Laboratory (4,4) Survey course, with accompanying laboratory, treating the fundamental concepts, structure and dynamics of the universe and introducing the basic vocabulary of astronomy and principles of scientific method. Components of the solar system including results from planetary exploration spacecraft; hypotheses and theories of the origin and evolution of the solar system in light of current knowledge and scientific reasoning; stellar birth, evolution, and death as a chain of events; characteristics of galaxies and the origin of the universe examined in light of modern astrophysics and particle physics. A minimum of mathematical training is required. Must be taken in sequence. 4 hours lecture, 5 hours laboratory. Prereq: 121-122 or equivalent or consent of instructor. May be repeated. Maximum 9 hours.

217-218 Honors: Introductory Astronomy (4,4) Intro-
duction to astronomy and astrophysics. Historical perspectives in understanding the celestial universe, with emphasis on the laws of physics as they apply to the universe. Structure of the solar system and celestial motions; evolution and properties of stars; galactic structure and models of the universe. Observational techniques and interpretation of underlying physical laws in accompanying lab. 3 hours lecture, 2 hours lab. Coreq: Mathematics 141 or 150 or equivalent. Credit given for only one sequence of lower division astronomy. This sequence satisfies the liberal arts requirement for a natural science major.

411 Astrophysics (3) Development of analytical physical models of the universe, its structure, stellar and interstellar matter, and planetary systems. Topical and interdisciplinary approach includes consideration of quasars, pulsars, black holes and current developments in the field. Acceptable for major credit in physics. Prereq: Physics 232 and consent of instructor.

490 Special Topics in Astronomy (1-3) Topics of current interest in Astronomy and Astrophysics. May be repeat-
ed for credit with consent of department. Maximum 9 hours.

AUDITORY AND SPEECH PATHOLOGY

126 Speech for Foreign Students (3) Sounds and intonation patterns of American English and relation of spelling to sound. Designed to improve students' ability to speak and understand English. Satisfactory/ No credit.

304 Introduction to Communication Disorders (3) Nature, etiology, and incidence of speech, hearing and language disorders.

305 Speech Sciences I: Phonetics and Acoustics of Speech (3) Basic phonetics including recognition and production of spoken English sounds with analysis of their formation; acoustic characteristics of speech and speech perception.

306 Speech Sciences II: Anatomy and Physiology (3) Anatomy, physiology and embryological development of the speech production mechanism. Prereq: 305.

320 Speech and Language Development (3) Speech and language development in the normal child.

331 Articulation Disorders (3) Etiology, diagnosis, and treatment of articulatory defects. Prereq: 304, 305, or consent of instructor. (Same as Special Education 351.)

371 Audiology I (3) Basic acoustics. Fundamental aspects of auditory anatomy and physiology. Introduction to disorders of hearing. Basic Psychoacoustics. (Same as Special Education 371.)

404 Appraisal of Speech and Language Disorders (3) Diagnostic procedures for children and adults with speech and language problems including observation and practice with diagnostic tests. Prereq: 304, 305, 433 or consent of instructor. (Same as Special Education 404.)

431 Stuttering (3) Nature, appraisal and treatment. Prereq: 304 or consent of instructor.

433 Clinical Practice in Speech-Language Pathology (1-4) Prereq: 320, 331 or consent of instructor. Enrollment for fewer than 2 semester hours must have prior departmental approval. (Same as Special Education 433.)

434 Clinical Practice in Speech-Language Pathology (1-4) Prereq: 331 and consent of instructor. Enrollment for fewer than 2 semester hours must have prior departmental approval. (Same as Special Education 434.)

440 Voice Disorders (3) Etiology, diagnosis, and treat-
ment of organic and functional voice disorders. Prereq: 304, 306, or consent of instructor. (Same as Special Education 440.)

445 Clinical Practice in Audiology (1-4) Prereq: 473 and 494.

455 Problems in Speech Pathology (1-3) Prereq: Con-
sent of instructor.


463 Practical Applications of Language Habilitation Techniques (3) Various methods and procedures used in treating delayed/disordered preschoolers. Alterna-
tive/augmentative systems included. Prereq: 461 or consent of instructor.

465 Speech and Language of the Culturally Different Child (3) Speech and language differences of children of various minority groups, of different ethnic and class membership and from different geographic regions.

473 Audiology II (3) Basic principles of clinical audiometry, pure tone audiometry, masking and over-
view of special audiological tests. Prereq: 371. (Same as Special Education 473.)

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

494 Introduction to Aural Rehabilitation (3) Rehabili-
tation of acoustically impaired who have communication difficulties, stressing maximum use of residual hear-
ing and utilizing other sensory modalities. Prereq: 473. (Same as Special Education 494.)
240 Advanced Topics in Biochemistry (3) Selected Topics of current research interest, e.g., allosteric theory and control of protein function, immunology, regulation of gene expression, bioenergetics, etc. Emphasis on original literature and the experimental basis of current knowledge. Historical background, societal impact, ethical and moral implications and public policy considerations. Written or oral reports required. Prereq: 410. 410. Writing emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom. F, Sp

430-440 Introduction to Physical Biochemistry (3,3) Development of concepts from physical chemistry for application to biological problems. 430 - Thermodynamics; General principles; equilibrium; and energy capture; synthetic metabolism; nucleic acids. Biochemistry of body fluids. Action of drugs and hormones. Prereq: Chemistry 120-130 or equivalent. Lecture and discussion. A, C

210 Cell Biology (3) Organization and function of the cells, tissues, and organs of the body. Prereq: Botany 118-128, or Botany 110-120 or 150, or Biology 110-120 General Botany (4,4) 110 - Introduction to taxonomy through tree identification; basic organization and function of cells; plant growth and development; physiology; respiration; photosynthesis; genetics (including meiosis, mitosis, Mendelian inheritance, and population genetics). 120 - Origin of life, survey of plant kingdom (algae, fungi, mosses, ferns, conifers, and flowering plants); ecology; life histories; evolution; and importance of man. Students may not receive credit for both Botany 110-120 and Biology 110-120, Biology 118-119, or Biology 150. 110 - F, Su; 120 Sp,F

118-128 Honors: General Botany (4,4) Same as General Botany 110-120 with emphasis on special topics and philosophical context including special presentations in the seminar format. Prereq: 410 or equivalent. Students will be awarded credit with a score of 27 or better on the natural science section of ACT, and sophomores who have a cumulative GPA of 3.25 (or 3.50 in the sciences) or who are approved through an interview with a member of the botany faculty. Students may not receive credit for both Botany 118-128 Honors and Biology 110-120, Botany 118-119, or Biology 150. 110 - F, Su; 120 Sp,F

305 Socio-Economic Impact of Plants (3) Significance of plants in origin and development of human cultures, evolution of role of plants in present civilization. Occasional field trips. Sp, Su, Mini-Term

306 Genetics and Society (3) Introduction to genetics, anthropology and evolution with emphasis on their implications for human society. (Same as Anthropology 306.)

309 Biology of Human Affairs (3) Basic biological principles involved in deterioration and preservation of an environment in which humans and their cultures may survive.

310-320 Plants: An Evolutionary Survey I, II (3,3) Morphology, development, natural history, and evolution. Survey non-vascular plants (mosses, liverworts, ferns) and survey vascular plants (ferns, gymnosperms, and flowering plants). Need not be taken in sequence. Prereq: 8 hours biological sciences. F

313 Introductory Plant Pathology (3) (Same as Entomology and Plant Pathology 313.)

321 Introductory Plant Physiology (4) Organismal physiology of plants: water relations, mineral nutrition, morphogenesis, elements of metabolic processes, effects of age, light, natural rhythms, temperature, and other environmental factors. Lecture and lab. Prereq: One year general chemistry and one year biological science. F, Sp, Su

330 Field Botany (4) Principles of taxonomy, basic ecological concepts and the identification, collection and preservation of local, native and naturalized plants. Prereq: 8 hours in biological sciences.

346 Introduction to Oceanography (4) (Same as Geology 346.)

371 Undergraduate Seminar (1) at least one hour is required for a Botany major or minor. Junior or senior standing recommended. May be repeated. Maximum 2 hours.

400 Tutorial in Botany (1-2) Individual, independent study under guidance of selected staff. Application only. May be repeated with consent of department. Maximum 4 hours

490 Radio and Television Management (3) Business policies and practices of broadcast operations, department functions, cost and income analysis, leadership styles and techniques with an emphasis on mid-level management. Capstone course to be taken in student's senior year. Prereq: 275, 310, 320, 330.

492 Practicum (1) On or off-campus work and learning experience at radio, television, cable or non-broadcast facility. 1 hour must be at WUTK-FM. 150 hours of work required for each hour of credit. Final written report required. May be repeated once. Prerequisites: 275, progression to a Broadcasting major and consent of department head.

493 Independent Study (3) Area of study in broadening to be determined by student in consultation with faculty advisor. Ordinarily the area of study is not part of the departmental curriculum. Students must complete an application form available in the department. Prerequisites: Senior standing and consent of department head.

BUSINESS ADMINISTRATION

311 International Business (3) Survey of strategic implications of conducting business operations in an international context. Analysis of relevant cross-national environments, including cultural, political, economic and legal characteristics. Prereq: Economics 201.

220 Business Career Planning and Placement (1) Career opportunities in business. Making the career decision; preparing for and conducting a job campaign; using the Placement Office. Satisfactory/No Credit only. Prereq: Satisfactory progression to upper division level in Business or Liberal Arts Business Minor.

467 Honors: Corporate Executive in Residence Seminar (3) Interaction with top corporate executives from a wide spectrum of business disciplines. Domestic and international strategic planning as it is applied in major U.S. Corporations. Executive presentations and small group discussion on goods and services in consumer and industrial settings. Prereq: Senior standing, Finance 301, Management 301, Marketing 301 and consent of instructor.

491 Foreign Study (1-15) Prereq: Consent of instructor. See page 56.

492 Off-Campus Study (1-15) Prereq: Consent of instructor. See page 57.

493 Independent Study (1-15) Prereq: Consent of instructor. See page 57.

BUSINESS LAW

301 The Legal Environment of Business (3) Introduction to legal systems. Analysis of strategic implications of conducting business operations in an international context. Analysis of relevant cross-national environments, including cultural, political, economic and legal characteristics. Prereq: Economics 201.

220 Business Career Planning and Placement (1) Career opportunities in business. Making the career decision; preparing for and conducting a job campaign; using the Placement Office. Satisfactory/No Credit only. Prereq: Satisfactory progression to upper division level in Business or Liberal Arts Business Minor.

467 Honors: Corporate Executive in Residence Seminar (3) Interaction with top corporate executives from a wide spectrum of business disciplines. Domestic and international strategic planning as it is applied in major U.S. Corporations. Executive presentations and small group discussion on goods and services in consumer and industrial settings. Prereq: Senior standing, Finance 301, Management 301, Marketing 301 and consent of instructor.

491 Foreign Study (1-15) Prereq: Consent of instructor. See page 56.

492 Off-Campus Study (1-15) Prereq: Consent of instructor. See page 57.

493 Independent Study (1-15) Prereq: Consent of instructor. See page 57.

CHEMISTRY

301 Principles of Chemistry (4) Bonding and molecular structure, gas laws, liquids and solid state solutions, colloids, acids and bases, oxidation and reduction, kinetics and equilibria. 3 hours and 1 lab. E

110 Introduction to Organic and Biochemistry (4) Organic chemistry: alkanes, unsaturated and aromatic hydrocarbons, structures and reactions of various organic functional groups. Biochemistry: amino acids and proteins, carbohydrates, lipids, nucleic acids. 3 hours and 1 lab. Prereq: 100 or 130 or 131 or 138. E

120-130 General Chemistry (4,4) A general course in theoretical and descriptive chemistry. 120 - Modern atomic theory, chemical bonding, stoichiometry, quantitative treatment of gas laws, quantitative aspects of solution chemistry, kinetics. 130 - Chemical equilibria, thermodynamics, descriptive chemistry of non-metallic and metallic elements, electrochemistry, introduction to organic and biochemistry. Prereq for 130: 120. 3 hours and 1 lab. E

121-131 General Chemistry (4,4) For chemistry majors. Subject matter similar to Chemistry 120-130. Prereq for 121: 131 hours and 1 lab. 121-F, 131-Sp

128-138 Honors: General Chemistry (4,4) 3 hours and 1 lab. 128-F, 138-Sp

140 Chemical Programming (2) Use of the computer in solving problems encountered in chemistry. Required of and limited to chemistry majors. Prereq or Coreq: 130 or 131 or 138. 1 hour and 1 lab. Sp

200 Introduction to Chemical Research (1) Participation in an active research program in analytical, inorganic, organic, physical, or polymer chemistry. Students work with researchers to acquire expertise in planning experiments, interpreting results, and formulating hypotheses. Credits will not be given toward a major or minor in chemistry. Not a substitute or prerequisite for 400. Prereq or Coreq: 200 or higher level course in chemistry and consent of instructor. May be repeated. Maximum 4 hours. E

230 Inorganic Chemistry (3) Periodicity, valence, bonding, and the descriptive chemistry of the elements; coordination compounds; nuclear chemistry; transition elements, inner transition elements. 2 hours and 1 lab. Prereq: 130 or 131 or 138. F

310 Analytical Chemistry (3) Principles and practices of quantitative measurements in chemical systems. Acid-base, complexometric, and redox equilibria; applications of titrimetric analysis; potentiometry; elementary spectrophotometry; chemical separations including chromatography, ion exchange, and solvent extraction. Prereq: 130 or 131 or 138. E

319 Analytical Chemistry Laboratory (1) Experiments on topics covered in 310. Coreq: 310. E

200 Advanced Analytical Chemistry (3) Modern electroanalytical methods; mass spectrometry; optical spectroscopic techniques; magnetic resonance methods; advanced chromatographic theory. Prereq: 310. Sp

329 Advanced Analytical Chemistry Laboratory (2) Experiments on topics covered in 320. Coreq: 320. Sp

350-360 Organic Chemistry (3,3) Compounds of carbon and their reactions. Reaction mechanisms, synthesis, spectroscopic and other physical properties. Must be taken in sequence. Prereq: 130 or 131 or 138; Coreq for 360. 369. B

369 Organic Chemistry Laboratory (2) Experiments on topics discussed in 350-360. Coreq: 360. One 5-hour lab. E

370-380 Biophysical Chemistry (3,3) Physicochemical principles with applications to biological systems. Must be taken in sequence. Not open to students having 371-370, 371-381, 373-Gas Laws: first, second and third laws of thermodynamics; chemical equilibria; solution chemistry; electrochemistry. 370- Reaction kinetics; transport phenomena; elementary quantum chemistry; optical and magnetic spectroscopy; light scattering and other topics. Prereq: 369 and Mathematics 142 or 152 or equivalent. 370-F, 380-Sp

371-381 Physical Chemistry (3,3) Students may not receive credit for both 370 and 371 nor for both 380 and 381. 371-Properties of gases; first, second, and third laws of thermodynamics; chemical equilibria; simple phase equilibria; properties of solutions; introduction to statistical thermodynamics. 381-Kinetics of chemical reactions; separation and characterization of compounds; applications to electronic structure of atoms and molecules; molecular spectroscopy; molecular symmetry. Prereq: 370 or consent of 138, Physics 231 or 222, and Mathematics 241. E

378-389 Physical Chemistry Laboratory (2,2) Experiments on topics discussed in 370-380 or 371-381. Prereq or Coreq: Corresponding courses 370 for 379 and 380 for 389. Sp

400 Research in Chemistry (3) Open to senior majors with consent of department head. Written reports are required. Advanced students work with faculty on projects requiring knowledge and skills acquired in chemistry curriculum. May be repeated Maximum 6 hours. E Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

405 Topics in the Development of Chemistry (3) Historical development of topics such as the atomic theory; chemical industry; interrelationship of population, energy, and food. Subject matter may change from one offering to another. Assignments include readings from older original literature (Dalton, Faraday, Kekule) and from current journals and monographs. Includes the use and misuse of evidence, the impact of chemistry on society, how scientists reach conclusions, and the nature of scientific communication. Prerequisites: 120-130, 130-131, 130-138. Sp

430 Advanced Inorganic Chemistry (3) Atomic and molecular structure, bonding theories, descriptive chemistry of the element, molecular structure and limited to chemistry majors. Prereq or Coreq: 370 and 380 or 381 for 389. 1 lab. E

128-138 Honors: General Chemistry (4,4) 3 hours and 1 lab. 128-F, 138-Sp

431 Radioactivity and its Application (2) Radioactive materials in tracer and therapeutic applications. Radioactive decay, detection apparatus and techniques, tracing procedures, safety precautions in agriculture, biology, medicine, nuclear physics, geochemistry. Prereq or Coreq: Physics 122 or equivalent and two courses from the following: 109, 110, 120-130, 121-131, 125-136, 126-136. Sp

450 Advanced Organic Chemistry (3) Modern organic reactions of mechanistic, synthetic, and theoretical interest. Content reflects current trends in the area. Prereq: 360. F

470 Advanced Physical Chemistry (3) Topics from chemical dynamics, statistical thermodynamics, quantum mechanics of atomic and molecular systems, crystal structure and solid state. Prereq: 380 or 381. Sp

490 Introductory Polymer Chemistry (3) Fundamental principles of the role of chemistry in the interdisciplinary field of polymer science. Relation of molecular structure to bulk properties of polymers. Prereq: 360 or Coreq or 380 or 381. F

CHILD AND FAMILY STUDIES

110 Introduction to Early Childhood Education (3) History, philosophy, current trends, issues, programs, program models. Includes observation. F

210 Human Development (3) Conception through adulthood in various social/ecoological contexts. Inter-
450 Assessment in Early Childhood Programs (3) Physical, cognitive, social, language development in handicapped and nonhandicapped children birth to 5 years; early childhood assessment procedures; supervised practicum in assessment. Prereq: 351 or consent of instructor. F


450 Directed Study in Child and Family Studies (1-3) Individual learning experience arranged for students under supervision of faculty. May be repeated with different topics. Maximum 6 hours. Prereq: 9 hours in Child and Family Studies and consent of instructor. F, Sp, Su

470 Student Teaching (15) Responsibility for planning and guiding groups of infants, toddlers, or preschoolers under supervision of Master Teacher. Includes weekly seminar. Prereq: 351. Satisfactory/No Credit only. F, Sp, Su. F and Sp student teaching begins on first day of registration and ends on last day of final examination period (student teaching follows the CDL calendar and does not include Spring break). Su student teaching begins the day following Sp commencement and ends on the day before Su commencement. No other classes may be taken during student teaching. F, Sp, Su

475 Day Care Administration (3) Theories, methods, and materials for administrators of early childhood education programs; funding, proposals, staff selection, financial management, recruiting and enroling children, supervision, evaluation, administration, communication, conflict resolution. Includes participation experience. Prereq: 351 or consent of instructor. F

480 Practicum in Family Science (6 or 15) Supervised experiences working with children or families, designed to meet special interests of students; includes weekly seminar. Prereq: 15 hours in Child and Family Studies. Satisfactory/No Credit only. F, Sp.

485 Special Topics in Child and Family Studies (1-9) Topics in the field. Prereq: 9 hours in Child and Family Studies and consent of instructor. May be repeated. Maximum 9 hours. F, Sp, Su

497 Honors: Child and Family Studies (3-6) Issues or topics affecting children and/or families, designed to meet particular interests of the student. Prereq: 15 hours in Child and Family Studies, overall GPA of 3.25 or greater, and consent of instructor. May be repeated. Maximum of 6 hours. F, Sp, Su

CLASSICS

221 Early Greek Mythology (3) Archaic Greek religion and myth with emphasis on how they reflect the early Greek vision of the universe and humanity's place in it. Origins and development of Greek myths and the rise of organized religion, from Bronze Age to about 450 B.C. Readings include Hesiod and Aeschylus. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom. F

222 Classical Greek and Roman Mythology (3) Use of myth in literature, religion, and philosophy of Greece and Rome from the first quarter of the first century B.C. to about 350 A.D. Two foci are the latter half of the fifth century B.C. and the last century B.C. Includes Oriental intrusions into Greece and Rome, including early Christianity. Readings include Sophocles, Euripides, Plato, Aristotle, and modern scholarship. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom. F

223 Classical Greek and Roman Mythology (3) Use of myth in later literature, religion, and philosophy of Greece and Rome from about 450 B.C. to about 350 A.D. Two foci are the latter half of the fifth century B.C. and the last century B.C. Includes Oriental intrusions into Greece and Rome, including early Christianity. Readings include Sophocles, Euripides, Plato, Aristotle, and modern scholarship. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom. F

223 Archaeology and Art of Ancient Greece (3) Survey of Greek archaeology from prehistoric times to the Roman period (ca. 3000-100 B.C.). For prehistoric times emphasis on architecture and artifacts used to recreate the culture of the Minoan and Mycenaean civilizations and that of the following Dark Age. For Archaic, Classical, and Hellenistic periods emphasis on development of architecture, sculpture, and vase painting; includesergency history of Linear B; history of Linear A; and the Mycenaean and the Roman World from prehistoric times to the fall of the Roman Empire (1000 B.C.-500 A.D.) Reconstructs the Etruscan civilization, Etruscan laws and artifacts, development of Roman architecture, and urban planning in Rome and Hellenistic cities. Prereq: 450 or consent of instructor. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

233 Archaeology and Art of India (3) Survey of the archaeology and art of the Indian subcontinent. Prereq: 223 and 351 or consent of instructor. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

234 Medieval and Scientific Terminology (3) Greek and Latin roots from which medical and scientific terminology is derived. Extensive practice in analysis of terms. Practice in use of Latin nomenclature.

321 Archaeology of the Aegean Bronze Age and Early Greece (3) Includes Troy, the Cycladic islands, the Greek mainland, Crete, Cyprus ca. 3000-700 B.C. Rise and fall of the Minoan and Mycenaean civilizations and their effect on the Aegean World and Cyprus. Evidence for�cultural contacts with the Mediterranean and foreign contacts. Architecture, wall paintings, and artifacts. Prereq: One of the following: 232, 231, ancient history (Ancient Near East or Ancient Greece), or consent of instructor. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

334 Cities and Sanctuaries of the Ancient Greek World (3) Archaeological survey of the development of the Greek city and sanctuary from prehistoric times through the Roman period (ca. 2000 B.C.-300 A.D.). Includes topography and plans of major cities and sanctuaries, functions of buildings, development of city planning, quality of city life, religious rites and festivals including the Olympic games. Ancient sites include Mycenae, Athens, Priene, Alexandria, Persepolis, Olympia, Delphi. Students are recommended to have taken one of the following: 221, 232, 233, 281, History 310. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

361 Greek Civilization (3) Major aspects of ancient Greek civilization: religion, fine arts, political life, prehistoric and Mediterranean relations, the prominence of Athens; the role of modern archaeology in interpretation; emphasis on the sixth and fifth centuries B.C. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

383 Roman Civilization (3) Major aspects of ancient Roman civilization: political institutions, art and architecture, history, culture, and daily life, emphasizing the late Republic and early Empire. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

383 Women in the Greek and Roman World (3) The condition of women in the apparent male-dominated world of literature, art, and architecture of ancient Rome. Evidence from literature, vase paintings, and other arts is analyzed, with emphasis on the second century A.D. with emphasis on Athens in the fifth century B.C. and Roman Italy in the first and second centuries A.D. (Same as Women's Studies 383.)

422 Seminar in Classical Studies (3) Field of Classical studies today: recent achievements in the areas of both philology and archaeology; impact of the decipherment of Linear B on our vision of the culture and politics of the "golden age" of Pericles and Augustus; Classical studies and the academic profession on both the high school and college levels.
COMPUTER SCIENCE

100 Introduction to Computing (4) History of computers, overview of computing, current trends, hardware, software, computing tools currently available. Organization and characteristics of modern digital computers. Introduction to programming, emphasis on developing good programming habits. Problem solving and algorithm development. Building abstractions with procedures and data. 100 and 102 may not both be taken for credit. 100 for students with little or no background in computing.


102 Introduction to Programming (4) Problem solving and algorithm development. Organization and characteristics of modern digital computers. Emphasis on developing good programming habits. Building abstractions with procedures and data. Programming in a modern computer language. 100 and 102 may not both be taken for credit. 3 hour lab required.

111 Computer Organization (3) Number systems, internal representation of numbers in computers, hardware components, organization, introduction to assembly language, microprogramming control units. Computing with register machines, introduction to digital circuits. Prereq: 100 or 102. 3 hour lab required.

112 Data Structures (3) Structured programming, data structures and applications. I/O techniques, lists, queues, trees, tables, streams, algorithms, files. 3 hour lab required.

203 COBOL (3) Computer programming in COBOL. File handling, decision expressions. Prereq: 100 or 102 or consent of instructor.


291 Lower-Division Special Topics (1-3) Topics vary. Programming languages, operating systems and application software packages. May be repeated. Maximum 9 hours.

311 Discrete Structures (3) Propositional and predicate calculus, algorithms, graphs, trees. Prereq: Mathematics 222 and either 100 or 102.

309 Problem Solving (3) General approaches to problem solving, emphasis on formalizing intuitive heuristics. Structure of problems and goals, generation of alternatives, and dealing with incomplete information. Prereq: 111 and 112. 3 hour lab required.

331 Digital Design (3) Logic design, microprocessors and microprocessor interfacing, interrupts. Prereq: 111 and 112. 3 hour lab required.

400 Introduction to Information Systems Design (3) Principles of analysis and design of information systems (e.g. data processing, management information and decision support systems). Advanced data structures, concepts and techniques. Format is 2 lecture hours and 3 lab hours. Prereq: 111 and 112. (Required core course for the Information Systems concentration.)

360 Systems Programming (3) Linkers, loaders, multitasking, I/O facilities, interrupt handling, monitors, editors. Prereq: 111 and 112. (Required core course for the Computer Systems concentration.) 3 hour lab required.

371 Numerical Algorithms (3) Same as Mathematics 371.

380 Theory of Computation (3) Recursive functions, Turing machines, complexity, computability, the Church-Turing axiom and its consequences. Prereq: 111 and 112. (Required core course for the Theory of Computation concentration.)

381 Formal Languages (3) Grammars of the Chomsky hierarchy and their recognizers. Properties of languages and machines. Prereq: 111 and 112 and 311.

401 Applications of Computer Graphics (3) Commercial software, techniques, hardware. Prereq: 100 or 101 or 102. May not be taken for credit by Computer Science majors. 3 hour lab required.

402 Applications for Artificial Intelligence (3) Commercial software, techniques, hardware. Prereq: 100 or 101 or 102. May not be taken for credit by Computer Science majors. 3 hour lab required.

403 Applications of Microcomputers (3) Microcomputers, DOS, commercial software and hardware. Prereq: 100 or 101 or 102. May not be taken for credit by Computer Science majors. 3 hour lab required.

404 Applications of Database Systems (3) Commercial software, systems, techniques. Prereq: 100 or 101 or 102. May not be taken for credit by Computer Science majors. 3 hour lab required.

411 Senior Thesis I (3) Frontiers of computer science technology and research. Students begin writing a senior thesis. Prereq: Senior standing. Writing emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

412 Senior Thesis II (3) Continuation of 411. Writing emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

421 Introduction to Artificial Intelligence (3) Introduction to AI languages. Basic techniques of heuristic search, gaming, and theorem proving. Prereq: 320. 3 hour lab required.

422 Expert Systems (3) Production rule model and its extension into expert systems. Deriving explanations, examples of expert system tools and building expert systems. Other methodologies—frames, scripts, decision expressions. Prereq: 421. 3 hour lab required.

423 Natural Language Processing (3) Phrase-structured and slot grammars, error-correcting interfaces and semantics. Applications in database and expert systems. Prereq: 361 and 421.

424 Robotics Software (3) Software for robotic control. Prereq: 351 and Mathematics 142. 3 hour lab required.

425 Functional Languages (3) Functional, applicative and object-oriented languages such as LISP and SMALL-TALK, a tutorial introduction. Prereq: 111 and 112 and Mathematics 222. 3 hour lab required.

426 Computer Graphics (3) Interactive computer graphics. Transformations, perspectives, shading, vector generation. Graphics hardware such as tablets and chips with goal of understanding techniques for designing computer systems for graphics capability. Prereq: 331. 3 hour lab required.

433 Computer Systems Architecture (3) Parallel processing, memory, I/O, pipelines, specialized architecture. Prereq: 111 and 112.

434 Networks and Communications (3) ISO open system interconnection model, protocols, study of several existing wide area network, local area networks. Prereq: 331 and 380.
435 Microcomputer Systems (3) Disk operating systems, personal area networks and communication protocols. Introduction to multiprocessor microcomputer systems. Prereq: 331 and 360. 3 hour lab required.

436 Computer Systems Hardware Design (3) Investigation of computer systems hardware, including bus structures, I/O devices, interrupt support hardware, direct memory access logic, timing budgets, and system control instructions. Lab includes the construction, testing and debugging of either or both of a prototyped subsystem; a system based on commercially available microcomputer component devices. Prereq: 435. Includes 3 hour lab.

439 Microprogramming (3) Microprogramming concepts and techniques for control systems of large and small machines. Bit-slice architecture, sequencers, etc. Prereq: 351, 3 hour lab required.

441 Science Information Systems (3) Design of scientific data banks, document repositories, information retrieval and electronic dissemination services. Control and dissemination of scientific information at the national and international level. Prereq: 340.

442 Introduction to Database Management Systems (3) File searching and organization, hierarchical, network, and relational models; relational calculus and algebra, data definition and manipulation languages; implementation and security considerations; performance, integrity, and reliability metrics; intelligent database systems. Prereq: 340 and 311.

443 Introduction to Information Storage and Retrieval (3) Information storage and retrieval, statistical, syntactic, and logical analysis of information content, evaluation of retrieval effectiveness. Prereq: 340.


451 Pattern Recognition and Analysis (3) Elements of syntactic pattern recognition, learning algorithms, decision theory, classification rules. Prereq: 111, 112 and 463. 3 hour lab required.

452 Image Processing and Analysis (3) Methods for digitizing, storing, processing, and displaying images. Image enhancement, restoration. Prereq: 451. 3 hour lab required.

460 Human Factors in Software (3) Interface between people and machines and the ease of use of software in the environment for which it is intended. Prereq: 111 and 112.


462 Software Engineering (3) Software design and application process from initial requirement and specification statements to coding, testing, implementation, and maintenance. Prereq: 111 and 112.

463 Programming Languages (3) Study and comparison of programming languages and their environments. Human interfaces, formalisms, domain of applicability, object manipulation, syntax, etc. Prereq: 111 and 112.


465 Parallel Computation I (3) Examination of non-numerical algorithms for parallel computation, operating systems, design and classification of parallel processors, compilers, concurrent computation. Prereq: 433.


471 Numerical Analysis (3) (Same as Mathematics 471.)

472 Numerical Algebra (3) (Same as Mathematics 472.)

473 Computer Modeling and Simulation of Physical Systems (3) Interactive techniques for the simulation of various kinds of physical systems. Prereq: 111, 112 and 311; and Mathematics 371.

476 Management of Uncertainty of Computer Systems (3) Origins of uncertainty and methods for dealing with the various classes of uncertainty. Topics may include hazards in switching circuits, vagueness in natural language processing, approximate reasoning models. Prereq: 111, 112 and Mathematics 222.

482 Graph Theory and Applications (3) Planarity, network flow, critical paths, etc. Prereq: 111, 112 and 311.


493 Independent Study (1-15) Special project in area of student's primary interest. Directed by Computer Science faculty, perhaps jointly with student's faculty advisor. Intended for students with a specific project to pursue in conjunction with a faculty member. Project may be from a department other than Computer Science in which a case a faculty member from the appropriate department will help oversee the project. May be repeated. Maximum of 6 hours may be applied to the major. Prereq: Consent of instructor.

494 Special Topics in Computer Science (1-3) May be repeated. Maximum 9 hours.

CULTURAL STUDIES

100 Selected Topics (1-3) May be repeated. Maximum credit 6 hours.

400 Selected Interdisciplinary Cultural Topics (1-12) Acceptable for credit in any cultural studies concentration or minor except Afro-American studies. Registration by consent of director of cultural studies and the respective chairperson. May be repeated for credit up to maximum of 12 hours.

491 Foreign Study (1-15) Acceptable for credit in any cultural studies concentration or minor except Afro-American studies. Registration by consent of director of cultural studies and the respective chairperson.

492 Off-Campus Study (1-15) Acceptable for credit in any cultural studies concentration or minor except Afro-American studies. Registration by consent of director of cultural studies and the respective chairperson.

493 Independent Study (1-15) Acceptable for credit in any cultural studies concentration or minor except Afro-American studies. Registration by consent of director of cultural studies and the respective chairperson.

DANCE

101 Practicum: Dance Production (1) Supervised technical and promotional production aspects of university dance company. May be repeated. Maximum 2 hours.

201 Practicum: Dance Performance (2) Preparation and presentation of university dance company performances. Participation through audition only. May be repeated. Maximum 16 hours.

210 Ballet Level I (2) Instruction and practice in elementary classical ballet techniques. May be repeated. Maximum 4 hours.

220 Jazz: Level I (2) Instruction and practice in elementary jazz dance styles and techniques. May be repeated. Maximum 4 hours.

230 Modern: Level I (2) Instruction and practice in elementary modern dance techniques. May be repeated. Maximum 4 hours.

240 Tap: Level I (2) Instruction and practice in elementary tap dance techniques.
ECOLOGY

370 Environment and Conservation (2) Introduction to natural and artificial environments and natural resource conservation. Limited to students in the College of Education.

ECONOMICS

100 Survey of Economic Ideas (3) Ideas of major economists in context of socioeconomic conditions of their times. Emphasis on nontechnical treatment. May not be substituted for Economics 201.

201 Introductory Economics: A Survey course (4) Theory of consumer behavior, theory of firms, supply and demand, costs of production, market models, national income and employment theory, money and banking, monetary and fiscal policy, debt, and international economics.

207 Honors: Introductory Economics (4) Honors course for students of superior ability and interest. Students accepted on the basis of their records.

311 Intermediate Microeconomics (3) Theories of consumer behavior, production of goods and services, costs of production, profit maximization, price and behavior of firms in perfectly competitive, monopsonistic, and imperfectly competitive markets, input prices, income distribution, welfare and general equilibrium. Prereq: 201.


321 International Economics (3) Balance of payments, exchange rate determination, monetary and fiscal policies, monetary arrangements, comparative advantage, tariff and nontariff trade distortions, protection arguments, regional integration. Prereq: 201.

323 Economic Development (Third World) (3) Theories of economic development, policies and strategies used to promote economic improvement in less developed countries. Prereq: 201. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

324 Comparative Economic Systems (3) Economic processes under alternative strategies and allocations mechanisms. Prereq: 201. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

325 Economic History of the North Atlantic Community (3) Origins of capitalism, mercantilism, Industrial Revolution, development of factory system, rise of organized business and labor, integration of the Atlantic economy. Prereq: 201. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

331 Government and Business (3) Antrust and regulatory economics, problems in regulation and social control of business organization, oligopoly models. Prereq: 201. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

341 Survey of Labor Economics (3) Extension of economic principles to labor markets, public policy questions, demand and supply, theory of wage differentials, unemployment, unions in the private sector, investment in individuals, education and training, mobility. Prereq: 201.

343 Labor Relations and Collective Bargaining (3) See Management 311.


361 Regional and Urban Economics (3) Overview of regional differences. Theory of industrial and agricultural location and urban migration, economic basis for land use patterns, central places, and urban form, regional and urban structure, growth, and methods of analysis, examination of urban problems. Prereq: 201.

381 Econometrics (3) Methods of specification, estimation, testing and forecasting of economic relationships. Includes specification of models, estimation methods, statistical inferences of empirical results, forecasting procedures, and common econometric problems, such as multi-collinearity, heteroscedasticity, and autocorrelation. Prereq: 201, Statistics 201, Mathematics 121-122 or 141-142.

400 Special Topics (3) Topics vary. Prereq: has determined by department, each time course is offered. Numerical grade is given to law students. Prereq: 201.

415 History of Economics (3) Methods of study of doctrinal history. Origins and evolution of major doctrines, Classical and Neoclassical economics, economics of Keynes and his followers, some principal developments of the second half of the twentieth century. Major writing requirement. Prereq: 201 and consent of instructor.

423 Political Economy of World Development (3) Topics vary. Latin America, Asia, Soviet Union and Eastern Europe. Analysis of major economic strategies, policies, and problems. Major writing requirement. Prereq: 201. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.


482 Economics of Resources and Environmental Policy (3) Economic analysis of environmental policy and allocation of resources. Benefits and costs of economic development of natural resources and impacts of growth on environment. Major writing requirement. Prereq: 201.

471 Public Finance: Optimal Government Functions and Expenditure Analysis (3) Problems of collective consumption, external effects, public investment, social decision making. Prereq: 201.

472 Public Finance: Taxation and Intergovernmental Transfers (3) Individual taxes and tax system, non-tax sources of revenue, fiscal federalism. Prereq: 201.

482 Introduction to Mathematical Economics (3) Application of algebra, matrix algebra, differential and integral calculus to micro and macroeconomics. Prereq: 201, Mathematics 121-122 or 141-142.

490 Independent Study (1-15) Independent investigation of problems in economic and related fields. E Credit/no credit only. E May be repeated twice. E Satisfactory/No Credit only. E

493 Independent Study (1-15) Independent investigation of problems in educational and counseling psychology. May be repeated. Maximum credit 15 hours. E

EDUCATIONAL AND COUNSELING PSYCHOLOGY

210 Psychology of Human Development for Teachers (3) Understanding and application of the psychology of human development to teaching/learning process in educational and counseling psychology. May be repeated twice. Satisfactory/No Credit only. E

215 Learning Skills and Study Systems (3) Approach to enhancing academic performance through study skills, efficient reading and understanding of personal factors. E

305 Laboratory in Educational and Counseling Psychology (1) Practice in acquiring knowledge and skill in such areas as interpersonal reactions, career decision-making, communication and self-awareness. Individual and small-group format. May be repeated twice. E Satisfactory/No Credit only. E

315 Psychology of Learning and Classroom Management for Teachers (3) Understanding and application of the psychology of learning and classroom management to the teaching/learning process in educational settings. Prereq: 210 or equivalent and admission to Teacher Education Program. (Same as Education 315.) F

325 Principles of Educational Test Construction (3) Constructing classroom tests for diagnosing student learning needs and for evaluating mastery of subject matter. Prereq: 315 and admission to Teacher Education Program. (Same as Education 325.) Sp

404 Special Topics (1-3) Instructor initiated course offered at convenience of the department on various topics of current interest. Contact department for listing of topics to be covered. May be repeated. Maximum credit 15 hours. E

410 Sex Role Development: Implications for Education and Counseling (3) Theories and research concerning the development of sexual role and its relevance in educational and counseling settings. E

431 Personality and Mental Health (3) Perspectives of mental health within the context of relationships to education and other social institutions. E

432 The Disadvantaged Student: Psychoeducational Perspectives (3) Theory and research regarding etiology, psychosocial behavior and appropriate interventions. E

460 Self-Management in the Helping Professions (3) Applications of self-management strategies to career, social, emotional and health domains for both helping professionals and their clientele. Prereq: Introductory course in psychology or permission of instructor. E

493 Independent Study (1-15) Independent investigation of problems in educational and counseling psychology. May be repeated. Maximum credit 15 hours. E

EDUCATIONAL CURRICULUM AND INSTRUCTION

141 Efficient Reading and Study Skills (2) Improvement of reading comprehension and rate, intensive vocabulary training, study skills as they relate to content area subjects. Satisfactory/No Credit only. E, Sp

315 Psychology of Learning and Classroom Management for Teachers (3) (Same as Educational and Counseling Psychology 315.)

325 Principles of Education Test Construction for Teachers (2) (Same as Educational and Counseling Psychology 325.)

370 Survey of Exceptional People (2) (Same as Special Education 370.)
200 Field Study in Education (1-3) Problems of persons in active service field. Includes methods of teaching, curriculum materials, school-community relationships and school organizations. May be repeated. Maximum 6 hours. E

302 School and American Society (3) Historical, philosophical, and social perspectives on contemporary educational issues. (Same as Education 302.) F, Su

303 Teacher Effectiveness and Curriculum Design (1) Literature and research on effective teaching. Relations between teaching, curriculum materials, school-community relationships and school organizations. Prereq: Admission to Teacher Education Program. (Same as Education 303.) F, Sp

304 Microcomputers and Instructional Design (1) Basic operations and application of microcomputer as related to curriculum development and instructional design. Prereq: Admission to Teacher Education Program. (Same as Education 304.) F, Sp

325 Teaching Science and Social Studies in Elementary and Middle Schools (3) Methods and materials for teaching science and social studies in elementary and middle schools. Teaching approaches common to both fields including inquiry, multi-sensory activities, and group work. Prereq: Admission to Teacher Education Program. F, Sp

326 Language Arts/Reading in Elementary and Middle Schools (3) Language and language development as applied to teaching of oracy (listening, speaking), reading, and literacy (reading, process/readiness and writing). Includes methods and materials. Prereq: Admission to Teacher Education Program. F, Sp

328 Teaching Developmental Reading in the Elementary and Middle Schools (3) Methods and background on how to teach word recognition skills, comprehension, study skills and how to use materials. Includes units on phonics, evaluation and basal readers. Prereq: Admission to Teacher Education Program. F, Sp

335 Teaching Elementary and Middle School Mathematics (3) Plan and organize learning experiences in which children learn mathematics. Unit planning, daily planning, grouping, classroom management are included. Prereq: Admission to Teacher Education Program. F, Sp

351 Laboratory and Field Studies in Elementary Education (3) Seminar in educational psychology of the individual. Emphasis on students' own experience in which students apply concepts and skills from professional methods courses in a variety of school settings and levels. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only. E

352 Field Experiences in Teaching: Secondary I (1) Field experiences in tasks related to teaching and teacher roles. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only. Sp

353 Field Experience in Teaching: Secondary II (1) Field experiences in tasks related to teaching and to teacher roles. Prereq: 352 and admission to Teacher Education Program. Satisfactory/No Credit only. Su

355 Introduction to Secondary Schools (3) Aspects of teaching in grades 7-12, including curricular program and roles and responsibilities of secondary school teachers and administrators. Prereq: Admission to Teacher Education Program. Sp, Su

402 Social Theory and Educational Practice (1) Concurrent with internship; designed to integrate student's own experience with foundational theory and policy. Prereq: Admission to Teacher Education Program. (Same as Education 402.) F, Sp

404 Problems in Improvement of Instruction (1-3) Special conferences, workshops or in-service programs designed for improvement of instruction. May be repeated. Maximum 6 hours. Satisfactory/No Credit. E

410 Pre-Internship Seminar (1) Objectives and policies of the internship program. Must be completed the semester prior to internship. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only. Sp, Su

419 Teaching Laboratory (3) Learning and practicing research based effective teaching behaviors. Video taping in simulated school settings. Prereq: Admission to Teacher Education Program. F, Sp

421 Elementary and Middle School Science and Social Studies Instruction (3) Methods and materials for teaching science and social studies. Development of functional relationships and individual elements of the sciences. Prereq: Admission to Teacher Education Program. F, Sp

424 Studies in Elementary Education (1-3) Variable topics on teaching in Early Elementary (K-3), Middle Elementary (4-8), and Skills (K-9). Prereq: Admission to Teacher Education Program. F, Sp

429 Language Arts/Reading in Elementary and Middle Schools (3) Language and language development as applied to teaching of oracy (listening, speaking) and literacy (reading, process/readiness and writing). Prereq: Admission to Teacher Education Program. F, Sp

430 Elementary and Middle School Developmental Reading Instruction (3) Word recognition (including phonics), comprehension, evaluation, and materials. Not open to students who have had recent course in reading methods. Prereq: Admission to Teacher Education Program. F, Sp

434 Topics in Reading Education (1-6) May be repeated. Maximum 6 hours. Prereq: Admission to Teacher Education Program and a course in Reading Education. E

435 Elementary and Middle School Mathematics Instruction (3) Procedures for helping children learn mathematics. Unit planning, daily planning, grouping, general factors related to classroom management. Not open to students with recent course in teaching elementary school mathematics. Prereq: Admission to Teacher Education Program. F, Sp

445 Early Childhood Education: Program Development and Teaching in Kindergarten (3) Curriculum planning, classroom organization and management practices for teaching kindergarten to total elementary school. Prereq: Admission to Teacher Education Program. E

451 Education in Cultural Perspective (3) Contribution of anthropological concepts to understanding of educational processes; major conceptual frameworks; selected ethnographic research on process of schooling. F

453 Adolescent Literature (3) Literature written or appropriate for adolescents. F

455 Teaching of Reading (3) Instructional methods, selection and utilization of materials, and basic production skills needed for effective communication in the elementary classroom. Satisfactory/No Credit. F

456 Instructional Media in Elementary Education (1) Basic operations of audiovisual hardware, selection and utilization of materials, and basic production skills needed for effective communication in the elementary classroom. Satisfactory/No Credit. F

461 Developing Reading Skills in Content Fields (3) Teaching reading and study skills in content areas of the four year program. Extensive assessment of textbooks. Emphasis on middle school and high school. F, Sp, Su

471 Internship I (Elementary-Middle) (3) Methods and theories of teaching; internship is completed in local public schools. Application for internship should be made upon admission to the Teacher Education Program. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only. F

472 Internship II: Elementary-Middle (3) Demonstration of professional competence in planning, instruction, and classroom management in local public schools. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only. Sp

473 Student Teaching in the Elementary School (3-19) Semester equivalent to Educational Curriculum and Instruction 4810 or 4820. Intended for students in the four year program or equivalent. Not to be substituted for Educational Curriculum and Instruction 471: Internship I or 472: Internship II. Prereq: Admission to Teacher Education Program, permission of Mentoring Team, and 203 (1). Satisfactory/No Credit only. F

474 Student Teaching, Grades 7-12 (3-16) Semester equivalent to Educational Curriculum and Instruction 471: Internship I or 472: Internship II. Prereq: Admission to Teacher Education Program, permission of Mentoring Team, and 203 (1). Satisfactory/No Credit only. F

475 Utilization of Instructional Media (3) Basic communication process, need for instructional development, selection and utilization of basic media, and basic production techniques. (Same as Library and Information Science 475.) F, Sp, Su

476 Instructional Media in Elementary Education (1) Basic operation of audiovisual hardware, selection and utilization of materials, and basic production skills needed for effective communication in the elementary classroom. Satisfactory/No Credit. F, Su

481 Internship I: Grades 7-12-360 Methods and theories of teaching. Internship is completed in the local public schools. Application for internship should be made upon admission to the Teacher Education Program. Prereq: 410 and admission to Teacher Education Program. Satisfactory/No Credit only. Sp

482 Internship II: Grades 7-12 (3-6) Demonstration of professional competence in planning, instruction, and classroom management. Internship is completed in the local public schools. Prereq: 481 and admission to Teacher Education Program. Satisfactory/No Credit only. Sp

485 Teaching of Mathematics, Grades 7-12 (3) Preparation of teaching plans, evaluation, materials for teaching mathematics; selected ethnographic observation in schools. Prereq: Admission to Teacher Education Program. F

486 Introduction to Instructional Computing (3) Classroom uses of computers, applications for teachers, overview of computer operation and software for teachers of all grades. F, Sp

493 Independent Study (1-3) Topics to be assigned. May be repeated. Maximum 12 hours. E

494 Supervised Readings (1-3) Topics to be assigned. May be repeated. Maximum 12 hours. E

495 Special Topics (1-3) Topics to be assigned. May be repeated. Maximum 12 hours. E

496 Teaching Science Grades 7-12 (3) Methods, materials, recent trends in science and environmental education programs for secondary schools. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only. F

517 Seminar (1-3) Curriculum, instructional technology, elementary education and social foundations as they relate to goals of students' programs. May be repeated. Maximum 6 hours. E
ENGINEERING AEROSPACE


362 Dynamics/Vibrations (3) Central force motion, transfer orbits, free and forced vibrations of single and multiple degree vibrating systems. Prereq: ES&M 231. F


401 Thesis (3) Problem investigation and report. Prereq: Senior standing. F, Sp

422 Aerodynamics (3) Theory and design of aerodynamic bodies (1) Topics related to engineering including ethics. Formal oral presentations by students on engineering topics. Prereq: Senior standing. F

449 Aerospace Engineering Laboratory (3) Designing, conducting, and reporting results of experimental exercises. Test standards and specifications. Analysis of data and formation of conclusions. 3 hours lab per week. Prereq: 345, 351. F

494-495 Selected Topics in Aerospace Science (1-3) Emphasis on problems and topics in aerospace science pertinent to the several areas of aerospace science. Prereq: Consent of instructor. F, Sp

ENGINEERING BASIC

100 Seminar (1) Overview of the College, engineering as a profession, engineering ethics. Consideration of each major and the various engineering disciplines. Satisfactory/No credit


111 Fundamentals of Engineering Graphics (3) Technical sketching, geometric construction with emphasis on plane surface analysis; presentation of engineering data; graphical solution of three dimensional space problems including surface rendering. Two three-hour periods or three two-hour periods, including one hour of lecture per week.

121 Statics (3) Vectors, forces and moments; equilibrium of structures; free body diagrams, equilibrium, frames, trusses and friction. Coreq: Math 141.

131 Particle Dynamics (3) Kinematics, simple harmonic motion; Newton's laws, work-energy, impulse-momentum; impact. Prereq: 121; Coreq: Math 142.


ENGINEERING CHEMICAL


240 Fluid Flow and Heat Transfer (3) Force, energy and mechanical energy balances; flow in tubes, piping systems, heat transfer; pumps, plumbing, and metering; steady and unsteady state heat conduction; heat transfer in tubes and heat exchangers; radiation. Prereq: 200.

310 Chemical Engineering Laboratory (3) Thermodynamic fundamentals; heat transfer in chemical engineering. Prereq: 240, 330.

330 Chemical Engineering Thermodynamics (3) Basic concepts and chemical engineering applications of thermodynamics; emphasis on flow processes, real gases; estimation of properties, phase equilibria and chemical equilibria. Prereq: 240.

340 Mass Transfer (3) Stagewise operation; application of analytical, graphical and computer methods to design of stagewise separation operations. Differential operations-application of analytical and computer methods to the design of diffusive processes. Applications include gas absorption, distillation, extraction, humidification, ion exchange and membrane separations. Prereq: 330.

360 Process Dynamics and Control (4) Introduction to process control, control of the water system process design. Mathematical tools for characterizing dynamic behavior of processes; theory and practice of operating and controlling process systems. Includes laboratory work. Lab. Prereq: 240.

380 Seminar (1) Presentation and discussion of topics in the practice of chemical engineering. Satisfactory/No credit.

401 Chemical Engineering Data Analysis (3) Analysis of experimental data; identification of system extremals; statistical properties of samples; empirical modeling of processes; statistical process control; optimization techniques.

403 Introduction to Optimization (3) Principles and applications of optimization techniques to chemical process design; unconstrained and equality constrained optimizations, linear programming, dynamic programming, and geometric programming. Prereq: Math 241.

410 Chemical Engineering Laboratory II (3) Laboratory investigations of mass transfer and chemical reaction phenomena in chemical engineering. Prereq: 440, 450.

415 Computer Applications in Chemical Engineering (3) Introduction to computer solution of chemical engineering problems. Primary focus on the application of personal computer programs. Includes flow sheet simulation, spreadsheets, graphics and process modeling.


440 Transport Phenomena (3) Overview of momentum, heat and mass transfer processes; the application of differential and macroscopic balances, applications involving molecular diffusion, including simultaneous mass transfer and chemical reaction. Prereq: 340.


451 Advanced Process Dynamics and Control (3) Process and control system simulation and advanced industrial system design. Cascades, feedback, multivariable, deadtime, adaptive, and nonlinear control system design. Includes computer and laboratory work. Lab. Prereq: 360.

469 Engineering Internship in Process Control (4) Selected students work in small groups on industrial problems in process dynamics and control. Directed by faculty and engineers from host company. Prereq: 360 and consent of instructor.

475 Fundamentals of Bioreactor Design (3) Reactor modeling, analysis and design for microbial fermentations and cell culture, including batch, fed batch and continuous operation. Applications include: modeling of non-idealized systems; factors affecting productivity and control strategies.

476 Principles of Biochemical Separations (3) Selection and design of separation processes; critical analysis of separation processes including chromatography, electrophoresis, centrifugation, membrane processes, and conventional and supercritical fluid extraction.


485 Hydrocarbon Processing (3) Chemical and physical properties of selected petroleums and processes utilized in conversion of raw material into various fuels and selected chemical feedstocks. Prereq: 340.

486 Coal Processing to Liquid Fuels (3) Characterization of various coals with respect to current gasification and liquefaction technologies; production and conversion processes and estimation of product yields and the associated water, oxygen, and energy requirements; catalytic hydrogenation and reactor design considerations; economic assessments. Prereq: 485.


494 Special Problems in Chemical Engineering (3) Chemical engineering problems related to recent developments in industrial practice or engineering research. Prereq: Consent of instructor. May be repeated. Maximum credit 6 hours.

ENGINEERING CIVIL

210 Engineering Surveys (3) Mensuration through application of surveying techniques; theory of errors and statistical analysis; concepts of horizontal, vertical and angular measurements and control; construction surveys; and route surveys through vertical and horizontal courses. Prereq: Topographical surveying.

251 Transportation Engineering I (3) Transportation problems and perspectives, rural and urban; use of a systematic planning process; analysis of existing transportation systems, models, and policies. An introduction to the development of alternatives and the evaluation of civil engineering projects. Civil engineering decision making and appli-
cations of economic analysis. Prereq: Sophomore standing.

261 Stresses in Framed Structures (3) Stress and strain in framed members, behavior of members and joints, analysis of frames, and application of moment of inertia, reactions, moments, shears, and stresses in beams, columns, and torsional members. Prereq: Basic Engr. 121.

310 Route Surveying (3) Basic principles and practice of surveying; design and execution of surveys; preparation of reports. Prereq: Permission of instructor and department head. May be repeated.

410 Land Surveying (3) Procedures of locating properties; evaluating evidence; procedures to describe property, to create land divisions, and to prepare plots; laws of land surveying. Prereq: 210.

421 Portland Cement and Asphalitic Concrete (3) Aggregate properties and tests, tests of portland cement and asphalitic concrete, mix design methods for concrete and asphalt, concrete admixtures, tests of asphalt and mix design, and nondestructive testing. Two lectures and 1 lab. Prereq: 321.

433 Earthquake-Resistant Structures (3) Same as Architecture 433.

434 Elementary Structural Matrix Methods (3) Same as Architecture 434.

440 Civil Engineering Systems Design and Management (2) Methods of data analysis and modeling of civil engineering systems to enhance resource allocation for specific applications to problems of transportation, environmental, water resources, structural analysis materials. Emphasis on computer applications. Prereq: Junior standing or consent of instructor.

451 Highway Engineering (2) Design, construction, operation, and maintenance of highway facilities; includes application of various engineering principles and techniques to design, construction, and maintenance of highway facilities; covers both geometric and pavement design. Prereq: 210, 251, 352.

452 Traffic Engineering (3) Characteristics of driver, vehicle, and roadway and their interrelationship; traffic studies; basic considerations of traffic circulation and control, lighting, capacity analysis, roadway safety analysis and design. Prereq: 210, 251, 352.

453 Airport/Railroad Planning and Design (3) Airport master planning and railroad engineering. Runway configuration, airfield capacity, geometrics and terminal layout and design. Railroad capacity, geometrics and system layout and design. Prereq: 210, 251, 352.

455 Analysis of Framed Structures (3) Maximum stresses due to moving loads; uses of influence lines; lateral forces due to earthquake and wind; analysis of portals, building frames, and space frames; matrix methods; use of computer in structural analysis. Prereq: 361.

471 Introduction to Structural Design (3) Selection of rolled structural steel beams, design of structural steel members for axial tension and compression loads, reinforced concrete beams; use of standard specifications. Prereq: 361.

472 Steel Design (3) Design of plate girders and composite beams; consideration of members subjected to bending in continuous beams; design of a typical framed building including connections. Prereq: 451.


480 Water and Waste Transport (3) Theory and design of water distribution systems, wastewater collection systems and solid waste collection systems. Prereq: 390.

490 Water Resources Project Design (3) Development of multipurpose reservoir and dam project, including data acquisition, spillway and outlet works design; earthen and gravity dam stability analyses; drains and filters; maintenance and operation principles; and dam safety concepts, including dam break analyses. Prereq: 390, 395.

494 Urban Drainage Engineering (3) Design and management of stormwater conveyance and control systems, principles of hydrology; and hydraulic principles to design of drainage systems for urban, strip mining, and highway development; design of nontypical catchments, culverts, and detention retention basins; application of commonly-used computer runoff models; evaluation of land-use changes of streamflow quantity and quality. Prereq: 390, 395.

495 Water Resources Development and Management (3) Institutional framework including: water law, evaluation procedures for comparing and selecting among water resources development alternatives, multi-objective planning, principles of engineering economics, costs and benefits analysis, the development of environmental impact assessment procedures; decisions using risk-based methods; case studies. Prereq: Senior standing.

ENGINEERING ELECTRICAL AND COMPUTER


251 Electric Circuits I (3) Electric circuits: basic laws and symbols, Ohm's law, Kirchhoff's laws, circuit analysis techniques. Prereq: Math 222.

202 Circuits II (3) Complex circuits, imaginary and real power, effective power, and power factor; generator circuits: delta and wye connections, power measurement using two wattmeters. Coreq: 201.

205 Logic Circuits, Semiconductor Devices. For non-majors only. Prereq: Math 222.

211 Power Transmission and Distribution (3) Power transmission, single phase, three phase, per unit notation; steady state behavior of induction motors; synchronous machines; dc machines; alternate energy systems and direct-energy conversion. Prereq: 202.


251 Power Systems (3) Power transmission, single phase, phase to phase, phase to neutral, phase to ground, and phase to phase and neutral. Prereq: 202.

281 Energy System Components (3) Iron core magnetic circuits, transformers, single phase, three phase, per unit notation; steady state behavior of induction motors; synchronous machines; dc machines; alternate energy systems and direct-energy conversion. Prereq: 202.


301 Circuits and Electro Mechanical Components (3) DC and AC Circuits, Transients, Transformers, Motors, Generators. For non-majors only. Prereq: Math 221, Physics 221.


314 Linear System Design (3) Feedback control of continuous and discrete time linear systems, state space representation, and state space realization. Prereq: 311.

319 Systems Lab (1) Experiments and computer programs. Prereq: 311.

321 Energy System Components (3) Iron core magnetic circuits, transformers, single phase, three phase, per unit notation; steady state behavior of induction motors; synchronous machines; dc machines; alternate energy systems and direct-energy conversion. Prereq: 202.


325 Computational Techniques for Electrical Engineers (3) Mathematical software for solving engineering problems. Prereq: Math 222.
331 Electronic Devices (3) Fundamentals of energy band theory of p-n junctions; diodes, field effect transistors, and bipolar transistors; integrated circuit fundamentals; device applications, simple power supplies, and amplifiers; project laboratory. Prereq: 202.

322 Electronic Circuits (3) Multistage transistor amplifier biasing; common-emitter, common-base, and common-collector configurations; basic in-phase and out-of-phase configurations; basic feedback techniques; design and transient response of op-amp linear amplifiers; fundamentals of integrated circuit operational amplifiers and operational amplifier ICs. Acceptable as a designated design course. Prereq: 331. Coreq: 339.

339 Electronics Lab (1) Experiments and projects demonstrating electronics discussed in 332.

431 Fields I (3) Coulomb's law, Gauss's law, and Ampere's law, Maxwell's equation for electrostatic and magnetostatic cases; Maxwell's equations for dynamic case, dynamic potentials, uniform plane wave propagation. Prereq: 202.


426 Machines Lab (1) Experiments and projects demonstrating machines discussed in 422.

429 Power Electronics Lab (1) Experiments and projects demonstrating power electronics discussed in 423.

431 Digital and Analog Integrated Electronics (3) Basic processing and fabrication of active and passive components for monolithic integrated circuits; characteristics of bipolar, MOS and JFET transistors in typical analog and digital integrated circuit designs; standard digital logic circuits including TTL, ECL, Schottky technologies, MOS, and GaAs gates and arrays; design concepts for op-amps, comparators, references, regulators, and other linear functions. Acceptable as a designated design course. Prereq: 332. Coreq: 435.

432 Analog Signal Processing Electronics (3) Transducer signal and interfacing characteristics; analog integrated circuits including operational, instrumentation, and isolation amplifiers, rms and logarithmics, rms and logarithmic converters, multipliers, and functional generation. Includes active filters, circuit simulation techniques, error level and phase detection, multiplexers, modulation and demodulation, compact and harmonic compressors. Acceptable as a designated design course. Prereq: 332. Coreq: 436.

433 Electronic Amplifiers (3) Feedback amplifier principles; wideband linear amplifier design; radio frequency and audio power amplifier design; line regulated power supply design; oscillator principles. Acceptable as a designated design course. Prereq: 332. Coreq: 439.

435 Digital and Analog Integrated Electronics Lab (1) Experiments and projects demonstrating electronics discussed in 431.

436 Analog Signal Processing Electronics Lab (1) Experiments and projects demonstrating electronics discussed in 432.

439 Electronic Amplifiers Lab (1) Experiments and projects demonstrating electronic amplifiers discussed in 433.


442 Antennas and Propagation (3) Linear antennas, other simple antennas. Antenna gain, impedances, communication link parameters. Wave propagation in EAST, earth to atmosphere, and single-phase ionosphere. Reflections from earth, effects on link reliability. Prereq: 342.

443 Microwave Circuits and Electronics (3) Scattered wave description of circuits to include isolators and amplifiers, power and power dividers, circulators, phase shifters. Loading and interconnection of systems. Power generation and amplification by vacuum and solid state (bulk and junction) devices. Microwave switching, filtering and multiplexing devices. Transmission lines and waveguide components. Prereq: 342. Coreq: 449.


449 Microwave Circuits and Electronics Laboratory (1) Experiments and projects demonstrating microwave circuit and electronics discussed in 443.

541 Microprocessors in Computer Engineering (3) Integrated circuits used in computer systems with an emphasis on the microprocessor and its programming; monitor program and development system with cross-assemblers, file management, and emulation capabilities. Interfacing and hardware/software trade-offs in interrupt driven applications. Grade is dependent upon number of projects completed, homework solutions, and engineering notebook. Acceptable as a designated design course. Prereq: 352. Coreq: 455.


543 Data Acquisition Systems (3) Digital-to-Analog conversion techniques; Quad and R-2R ladder networks; error analysis; DJA converters; Sample Hold circuits; analog-to-digital conversion techniques; open loop systems; direct and matrix converters; closed loop systems; digital-to-analog converters; integration error; analysis of A/D converters; accuracy, linearity, drift, dynamic range, frequency response, power supplies and power supply regulation; interfacing. Prereq: 312, 342.


545 Microprocessor Laboratory (1) Experiments and projects demonstrating microprocessors discussed in 451.

546 Digital System Design Laboratory (1) Experiments and projects demonstrating digital systems discussed in 452.

549 Data Acquisition Systems Laboratory (1) Experiments and projects demonstrating digital communications discussed in 453.

561 Plasma Magnetohydrodynamic Engineering (3) The MHD approximation; MHD waves and instabilities; MHD in static and dynamic systems; MHD in pulsed and steady-state power generation, applications to fusion energy, industry, and astrophysics. Prereq: 361.

562 Plasma Kinetic Theory Engineering (3) Introduction to kinetic theory; beam-plasma system; driven waves in a plasma; transition from multiple beams to a continuum; Vlasov and Landau theory; microwave propagation in plasmas; plasma stability and counter- electron masers in circular geometry; the gyrotron and orbitron. Design of plasma devices. Acceptable as a designated design course. Prereq: 361 or consent of instructor.

543 Introduction to Fusion Energy I (3) High temperature plasma physics relevant to fusion plasma, principles of fusion reactors, and engineering of fusion plasma physics. Prereq: 361 or consent of instructor. (Same as Nuclear Engineering 463.)

544 Introduction to Fusion Energy II (3) Continuation of 543. Includes plasma physics of the tokamak reactor, alternate magnetic confinement concepts, advanced fusion fuels, fusion technology, plasma.
469 Plasma Laboratory (1) Experiments and design projects illustrating material covered in 462, 463 and 464.


489 Electro-Optics Lab I (1) Experiments and projects demonstrating electro-optics discussed in 481.

494 Special Problems in Electrical Engineering (1-3) Problems in Electrical Engineering involving library and experimental research. May be repeated. Maximum nine hours. Prereq.: Consent of instructor.

495 Senior Seminar (1) Topics vary. May be repeated once. Prereq.: Senior standing or consent of instructor.

499 Electro-Optics Lab II (1) Experiments and projects demonstrating electro-optics discussed in 482.

ENGINEERING INDUSTRIAL

200 Fundamental Computer Applications in Industrial Engineering (3) Application of modern computer hardware and software to enhance professional productivity. Emphasis on data processing, graphics, and library IE programs applied to Industrial Engineering. Includes FORTRAN programming and numerical analysis. Prereq.: Basic Engr. 101.


301 Operations Research (3) Introduction to mathematical programming includes classical optimization theory, linear programming (simplex method, transportation and assignment problems) and dynamic programming. Prereq.: Mathematics 231 and 200.

302 Work Methods and Measurement (4) Job analysis, job evaluation, design of wage structures, design of workplace layouts, flow charts, activity charts and methodology of standard time measurement tools such as time study, predetermined time systems, work sampling, data analysis, development of standard time data, learning time and wage incentive systems. Prereq.: Statistics 251.

304 Introduction to Human Factors Engineering (3) Human capabilities and limitations affecting work, work place, and work environment design. Emphasis on human input requirements, human output requirements, human inputs, the design of human-machine interfaces, the analysis of stress on performance, environmental factors affecting human factors, job design and work determining standards. For non-industrial engineering students. Prereq.: Junior standing.

ENGINEERING MATERIALS SCIENCE

201 Introduction to Materials Science and Engineering (3) Correlation of atomic structure, crystal structure and molecular structure of materials with mechanical, electrical and chemical properties of engineering significance. Prereq.: Chemistry 130. E

202 Fundamentals of Materials Engineering (3) First law of thermodynamics, mass and energy balances, thermochemistry, introductory kinetics, introduction to materials processing. Coreq.: 201. F

203 Experimental Methods in Materials Science (2) Laboratory including data acquisition and processing, environmental effects on mechanical properties, techniques, use of computers in data acquisition and analysis. 1 hour and 3 hour lab. Prereq.: 201. Sp

205 Metallurgical Processing (2) Overview of the scope of the discipline. Production technology for ore beneficia tion, reduction processes, semi-finished and finished metallic products.


302 Mechanical Behavior of Materials (3) Loading behavior for ceramics, polymers and metals; standardized tensile testing procedures; analytical treatment of stress, strain, and constitutive equations; theory of failure for ductile materials; analytical linear elastic fracture mechanics. Prereq.: 201, sophomore mathematics, ESM 321. Sp (Same as Engineering Science and Mechanics 323.)

303 Thermodynamics of Solids (2) Applications to solids of free energy; activity; Raoult's and Henry's laws; condensed phase equilibria; phase stability; phase rule; multicomponent systems. Prereq.: Chemistry 371. Sp

304 Introduction to X-ray Diffraction (3) Generation of x-rays; diffraction theory, powder technique; determination of lattice constants; phase identification; measurement of orientation; chemical analysis by x-ray spectroscopy. Includes laboratory. Sp

310 Electronic Properties of Solids (3) Electrical, thermal and mechanical properties of solids; atomic and macroscopic properties of materials; characteristics of solids, Brillouin zones, periodic structures, temperature and compositional dependence; application of modern technology to the applications and device design of semiconductor and electronic devices in materials science and engineering students. Prereq.: 201. Coreq.: Physics 232.
340 Introduction to Polymer Science and Engineering (3) Synthesis and molecular structure of polymers; polymerization kinetics; molecular characterization; crystalline and glass transitions; crystallization kinetics; mechanical properties; rheology and processing. Prereq: 201. Sp

342 Structure-Property Relationships in Polymers (3) Structure and property relationships with respect to crystallization kinetics, deformation modes, and orientation types. Electrical properties of polymers. Prereq: 340 or consent of instructor. F

360 Introduction to Ceramic Materials and Processing (3) Characterization of ceramic materials as to their crystal structure, their mechanical, electrical, and optical properties. Ceramic fabrication processes from the initial green body fabrication through the firing state. Prereq: 201

400 Microanalytical Techniques (3) X-ray diffraction principles and the concept of the reciprocal lattice. Kinematical theory of electron scattering to include diffraction contrast imaging, geometrically induced contrast, and coherent and incoherent backscattering. Preparation techniques for electron microscopy. Operating principles of electron microscopes. Prereq: consent of instructor. F

421 Mechanical Metallurgy (3) Brittle fracture due to metallurgical and environmental factors; stress-life and strain-life fatigue analysis; residual stresses; creep and stress-rupture; plastic strain, fatigue fracture; fabrication by forging, rolling, deep drawing, stretch forming; formability testing. Prereq: 302 or 201 and ME 466. Also suggested for mechanical engineering and science and mechanics majors. F

422 Chemical Process Metallurgy (3) Application of chemical thermodynamics to metallurgical processing. Ferrous and nonferrous pyrometallurgical refining, slag-metal equilibrium, solidification, gas-metal processing. Prereq: 303. F

423 Metallurgical Fabrication (3) Principles and practice of powder fabrication methods; selective oxidation, sintering, and solidification; segregation, heat flow, microstructure, residual stresses, thermal treatments including sintering and reactive sintering. Prereq: 300 (3 hours of 3 hours and 1 lab). Prereq: 303. F

424 Metallurgical Process Design (3) Property control through composition, thermal and mechanical processing, deformation and precipitation; steels and non-ferrous alloys. Prereq: 201. Sp

425 Metallurgical Applications in Manufacturing and Processing (3) Fabrication methods, standards and specifications; principles of thermomechanical processing; for finished and semi-finished products; casting, forming, joining, heat treatment, powder metallurgy, corrosion control. Prereq: 201.

444 Plastics Fabrication and Design (3) Lectures, laboratory and field trips; unit operations of plastic fabrication; plastics classification; design and selection criteria; processing techniques; characterization laboratory. Sp

446 Plastics (3) Energy and laws governing components of mixture design. Thermodynamic cycles; applications to engineering problems. Prereq: Chemistry 130, and Mathematics 231. F, Sp, Su

332 Thermodynamics I (3) Properties of gases and mixtures; chemical reactions; equilibrium; compressible flow; applications to engineering problems. Prereq: 331. F, Sp, Su

341 Fluid Flow (3) Development of mass, momentum, and energy fundamentals for fluid systems; dimensional analysis, internal and external viscous flows. Prereq: ES&M 231, Mathematics 231. F, Sp, Su


345 Mechanical Engineering Instrumentation and Measurement (3) Fundamentals of measurement systems; standards; dynamic characteristics of instruments; statistical data treatment; transducers; signal conditioning; strain, pressure, temperature and flow measurements. Prereq: 363 or Aerospace Engr. 362, 341, ECE 301, F, Sp


401 Thesis (3) Problem investigation and report. Prereq: Senior standing. F, Sp, Su

415 Energy Conversion Systems (3) Fossil fuel energy systems with emphasis on coal technology. Coreq: 475.

446 Turbo-Machinery (3) Basic principles of turbomachinery; systematic methods of analysis, design, performance evaluation. Prereq: Aerospace Engr. 351.

442 Environmental Noise (3) Acoustics - measurements and control of noise in industrial and community environments. Prereq: Senior standing in engineering or consent of instructor.

451 Systems and Controls (3) Analytical models of physical systems; comprised of combinations of mechanical, fluid, electrical, and thermal components; feedback control systems, transient and frequency response, stability analysis; non-linear control of linear systems; sampled data systems, digital filters. Prereq: 341, 363, ECE301-302. F, Sp

455 Introduction to Machine Design (2) Engineering economy, optimization, design for automation, reliability, patents and product liability; design of mechanical engineering solid mechanics systems. Participation in team design effort; requires design report. Prereq: 332, 465. F

456 Introduction to Thermal Design (2) Engineering economy, optimization, design for automation, reliability, patents and product liability; design of mechanical engineering thermal-fluid systems. Participation in team design effort; requires design report. Prereq: 332, 444. F

461 Computer Integrated Manufacturing (3) Application of computers to control of machine tools, robots, and automated assembly. Programming languages and computer-aided part programming; Dimensionalizing and metrology. Prereq: 366 or Industrial Engr. 404, Basic Engr. 201.

462 Tool Design (3) Principles underlying tool and die design; design for high volume production; work holding fixtures; comparison of material removal methods; selection of tool material; plastics production. Prereq: Mech. Engr. 386 or Industrial Engr. 404, ES&M 321.


468 Elements of Machine Design II (3) Application of strength of materials to design of machine elements. Design, analysis, selection of materials, factors of safety, failure and fatigue. 3 hours lecture, 2 hours laboratory. Prereq: 321.


471 Refrigeration and Air Conditioning (3) Vapor compression and absorption cycles; heat pump systems, psychrometric processes; air washers; cooling towers; solar radiation; building heat transmission. Prereq: 332, 344.

474 Solar Energy Utilization (3) Nature and availability of solar radiation; review of heat transfer topics pertinent to solar energy collection and use; design analysis of solar energy collectors and method of storage; selected applications. Prereq: 332, 344 or consent of instructor.

475 Thermal Engineering (3) Thermal systems with emphasis on turbomachinery, heat exchangers, combustion and system analysis and design including second law of thermodynamics. Prereq: 332, 344, F, Sp.


481 Internal Combustion Engines (3) Thermodynamic phenomena in combustion and propulsion engines. Combustion, detonation, equilibrium; dissociation and recombination of chemical reactions in engines using ideal and real fluids. Prereq: 332, 344.

494-495 Selected Topics in Mechanical Engineering (1-1, 4-4) Problems and topics related to development and practice in mechanical engineering. Prereq: Consent of instructor. F, Sp, Su.

ENGINEERING NUCLEAR

201-202 Seminar (1, 1) Topics related to nuclear engineering. Satisfactory/No credit.

203 Thermodynamics I (3) First law of analysis of open and closed systems. Properties of ideal gases and real fluids. Prereq: Math 142.

204 Thermodynamics II (3) Second law, development of entropy concept and availability. Various power plant cycles and systems. Prereq: 203.

301 Introduction to Nuclear Engineering (3) Nuclear systems, radioactive decay, cross sections, neutron interaction principles, nuclear reactor theory. Prereq: Physics 232, Math 231.


304 Nuclear Engineering Laboratory (3) Radiation detection and counting instrumentation, counting statistics, half-life and decay schemes, gamma Ray and neutron attenuation, the neutron slowing down process, heat transfer experiments. Prereq: 305, Coreq: 302.

305 Energy Transport (3) Development of differential and integral energy conservation; conduction and convection heat transfer, including numerical methods; application to nuclear reactor fuel elements, reactor cores, and heat exchangers. Prereq: 204.

306 Designing for Energy Transport (3) Radiation heat transfer; hydrodynamics in heat exchanger systems; boiling crises; fuel element and heat exchanger thermal design; steam generator design. Prereq: 305.

310-311 Thermal Hydraulics (3, 3) Energy and momentum transfer, they are transferred and transported. First and second laws of thermodynamics with applications from power cycles; transfer of heat through conductive and radiative mechanisms; and development of fluid flow principles for the transport of energy. Prereq: Math 241.

342 Thermal Science (3) Fluid statics; conservation equations of mass, momentum, and energy; applications to fluid machinery; heat transfer processes, conductive, convective, and radiative heat transfer. For non-departmental majors only.

401 Nuclear Reactor Theory (3) Thermal spectrum computational methods; heterogeneous effects in fast and thermal spectra; considerations in reactor core design; equations that relate thermal and neutron variables; power distribution calculations and reactivity control methods. Prereq: 302.

402 Nuclear System Design (4) First order design and analysis of a nuclear system, interface with non-nuclear systems of design including system reliability and economics, class project. Prereq: 401.

403 Nuclear Engineering Laboratory (3) Cross-section measurement, diffusion properties of neutrons, critical loading experiment, control rod calibration, statistical weight, shielding, xenon poisoning, dynamics and controls experiments. Prereq: 304 or equivalent. Coreq: 401, 405.

404 Nuclear Fuel Management (3) Topics relative to nuclear fuel cycle including mining and milling, fuel fabrication, reprocessing and waste disposal. Economic and regulatory issues. Prereq: 302.


463 Introduction to Fusion Energy I (3) (Same as Electrical and Computer Engineering 463.)

464 Introduction to Fusion Energy II (3) (Same as Electrical and Computer Engineering 464.)

ENGINEERING SCIENCE AND MECHANICS

231 Dynamics (3) Kinematics of rigid bodies; center of mass; kinetics of systems of particles; mass moments of inertia; kinetics of rigid bodies; Newton's laws of motion, impulse-momentum. Prereq: Basic Engr. 131, Mathematics 142.

271 Introduction to Biomedical Engineering (3) Overview of biomedical engineering; anatomy, physiology, biochemistry, biofluids, biotechnology, and biomechanics. Coreq: Math 241 or consent of instructor.

301 Seminar (1) Engineering professionalism and career planning. Seminars on current topics. Satisfactory/No credit. Prereq: Junior standing in ES&M.


322 Mechanics of Materials II (3) Analysis and design of beams, singularities, functions, energy methods, thick-walled pressure vessels, inelastic bending and torsion, theories of failure and fatigue. Prereq: 321.

323 Mechanical Behavior of Materials (3) (Same as Materials Science 302)


421 Materials of Engineering (3) Mechanical properties of engineering materials; data collection and processing; time and cyclic dependent properties. 3 hours or 2 hours and laboratory. Prereq: 321, Materials Science 201. (Same as Materials Science 475.)

425 Principles of Nondestructive Testing (3) Principles and theory of nondestructive testing methods; liquid penetrant, magnetic particle, eddy current, ultrasonic, acoustic emission, and radiographic methods. Laboratory, Prereq: 321, Materials Science 201. (Same as Physics 425.)

426 Fundamental Principles of Composite Materials (3) (Same as Materials Science 472)

431 Fundamentals of Vibrations (3) Free and forced vibrations of damped and undamped lumped parameter systems; energy methods; free vibration of continuous bodies. Prereq: 231, Mathematics 231.

433 Dynamic Systems (3) Three dimensional dynamical systems and applications of matrix theory and techniques to mechanical, mass systems; central force motion; Lagrange's equations; stability; transfer functions. Prereq: 231.

435 Engineering Acoustics (3) Concepts of acoustics, measures of sound and their units; noise generation and transmission, noise control principles and applications, materials and procedures for noise abatement. Prereq: 431.

442 Fluid Mechanics II (3) Differential forms of the basic laws; compressible flow, isentropic flow, shocks, duct flows with heat transfer and friction; open channel flow, critical flow, energy methods; internal and external viscous flows, boundary layers, turbulent flow. Prereq: 341, Mathematics 231.

452 Computational Mechanics II (3) Integration of fundamental physical laws, mathematical methods and computational techniques necessary to develop engineering analysis and design capabilities. Prereq: 351.

453 Project in Design and Development (3) Conceptualization, analysis, design, and presentation of an engineering project. Students work in teams to demonstrate engineering analysis and design capabilities. Prereq: 452.

461 Experimental Stress Analysis (3) Theory, techniques, and instrumentation of resistance strain gauges; theory and techniques of brittle coating method; introduction to other strain measuring devices. 2 hours and laboratory. Prereq: 321, ECE 301.

463 Photomechanics (3) Photoelasticity, photelastic coating method, Moire' method, interferometry, and holography; 2 hours and laboratory. Prereq: 321, Physics 232.

465 Dynamic Data Acquisition (3) Use and calibration of instrumentation for measuring and recording dynamic events; Fourier analysis, transfer function analysis, digital signal processing, transduction, experimental parameter estimation with applications to modal vibration analysis. 2 hours and laboratory. Prereq: 431, ECE 301.

471 Clinical Engineering and Biotechnology (3) Fundamental and clinical concepts of health care delivery systems including hospital organization and health care economics; development and management prin-
132 Composition for Non-Native Speakers of English II (3) Writing based on reading and discussion. Emphasis on research techniques and writing research papers. Individual conferences. Admission to this course is based on the English Placement Exam only. A,B,C,NC grading.

201 British Literature I: Beowulf through Johnson (3) Major literary works from three periods: Middle Ages, Renaissance, and Restoration and Eighteenth Century. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

202 British Literature II: Wordsworth to the Present (3) Major literary works from three periods: Romantic, Victorian, and Twentieth Century. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

207 Honors British Literature I (3) Enriched section of 201 designed for students with a 3.25 or higher GPA.

208 Honors British Literature II (3) Enriched section of 202 designed for students with a 3.25 or higher GPA.

221 Literature of the Western World I: Ancient, Mediaeval, and Renaissance (3) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

222 Literature of the Western World II: Enlightenment, Romantic, and Modern (3) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

227 Honors Literature of the Western World I (3) Enriched section of 221 designed for students with a 3.25 or higher GPA.

228 Honors Literature of the Western World II (3) Enriched section of 222 designed for students with a 3.25 or higher GPA.

231 American Literature I: Colonial Era to the Civil War (3) Development of American literature from its beginnings to the Civil War. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

232 American Literature II: Civil War to the Present (3) Development of American literature from Civil War to the present. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

233 Major Black Writers (3) Black American literature of the modern period. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

251 Introduction to Poetry (3) Poetry as a distinct mode of artistic expression. Critical tools for perception of reading of poems. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

252 Introduction to Drama (3) Critical tools for perception of play texts. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

253 Introduction to Fiction (3) 5-7 novels from the eighteen through the twentieth centuries, with emphasis on English and American authors. Critical tools necessary for judging longer works of fiction. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

258 Honors Introduction to Drama (3) Enriched section of 252 designed for students with a 3.25 or higher GPA.

263 Introduction to Creative Writing (3) Practice in writing poetry and fiction, combined with study of techniques and methods. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

268 Honors Introduction to Fiction (3) Enriched section of 253 designed for students with a 3.25 or higher GPA.

281 Introduction to Film Studies (3) Selected world cinema feature films. Critical techniques necessary for judging and analysis of narrative cinema. Basic elements of film expression and contours of film history. Writing assignments.

301 British Culture to 1660 (3) English literature in the context of parallel developments in art, architecture, music, and social and intellectual history. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

302 British Culture: 1660 to present (3) English literature in the context of parallel developments in art, architecture, music, and social and intellectual history. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

306 Introduction to Shakespeare (3)

332 Women in American Literature I (3) Women as writers and as subjects in American literature from its beginnings to the present. (Same as Women's Studies 332.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

333 Black American Literature and Aesthetics (3) Black American literature and aesthetics since 1895, with emphasis on cultural evaluations and the principles of being "American." Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

334 Film and American Culture (3) American films as both works of art and social documents. Relationship between the medium and the society of the twentieth century. (Same as American Studies 334.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.


355 Advanced Expository Writing (3) Strategies of writing on personal and academic subjects. Discussion of student and professional writing. Open to sophomores with instructor's consent.

356 Writing Poetry (3) Introduction to writing poetry.

357 Writing Fiction (3) Introduction to writing novels and short stories.

359 Writing Drama and the Screenplay (3) Introduction to writing one-act and full-length plays, as well as screenplays.

371 Foundations of the English Language (3) Phonology, morphology, and syntax of English. History of the English language to 1800. (Same as Linguistics 371.)

372 The Structure of Modern English (3) Survey of approaches—traditional, descriptive, and generative—transformational—to the structure of modern English. (Same as Linguistics 372.)

376 Colloquium in Literature (3) Methods and objectives of literary study; conferences to plan student's program in major.

378 Literary Criticism (3) Historical survey of major works of literary criticism.


389 Literature of the English Bible (3) Types of literature in the Bible: legend, folktale, history, biography, poetry, prophecy, apocalyptic. (Same as Religious Studies 389.)
398 Junior-Senior Honors Seminar (3) Designed for (but not limited to) students with a 3.2 or better GPA, this course examines social and intellectual forces and concepts that have shaped literature in English from medieval to recent times.

401 Medieval Literature (3) Reading and analysis of selected medieval literature and poetry of modern English. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

402 Chaucer (3) Reading and analysis of the Canterbury Tales and Troilus and Criseyde in Middle English.

404 Shakespeare I: Early Plays (3) Shakespeare's dramatic achievement before 1601. Selected plays from the romantic comedies (e.g., Twelfth Night), the English histories (e.g., I, Henry IV) and early tragedy (e.g., Hamlet).

405 Shakespeare II: Later Plays (3) Shakespeare's dramatic achievement between 1601 and 1613. Selected plays from the great tragedies (e.g., Othello), the problem plays (e.g., Measure for Measure), and the dramatic romances (e.g. The Tempest).

406 Renaissance Drama (3) English theatre between 1590 and 1640. Representative plays by Shakespeare's contemporaries (e.g., Marlowe, Webster, Jonson).

409 Spencer and his Contemporaries (3) Principal and representative works of Spencer and poetry of sixteenth-century authors such as Spenser, Wyatt, Marlowe, More, Sidney and Bacon.

410 Milton, Donne and their Contemporaries (3) Principal achievements in prose and poetry of the first two-thirds of the seventeenth century (such as the poetry of Milton, Donne, Marvell, and the prose of Browne, Bacon, Walton).

411 Restoration and Eighteenth-Century Poetry and Prose (3) Restoration drama and poetry and prose of the eighteenth century, with works by Dryden, Wycherley to Goldsmith andSheridan.

412 British Drama from 1660 to 1800 (3) Playwrights from Dryden and Wycherley to Goldsmith and Sheridan, including formal developments such as heroic play, cynical comedy, affective tragedy, and exemplary drama.

413 The Eighteenth-Century British Novel (3) Selected British novels from Defoe and Austen.

414 Romantic Poetry and Prose I (3) Emphasis on Wordsworth, Coleridge, and Blake, with readings from Lamb, De Quincey, and other prose writers.

415 Romantic Poetry and Prose II (3) Emphasis on Keats, Shelley and Byron, with readings from Hazlitt, Peacock, and other prose writers.

416 Victorian Poetry and Prose I (3) Emphasis on authors such as Browning, Arnold, Hopkins, Hardy, Ruskin, Darwin, and Wilde.

420 The Nineteenth-Century British Novel (3) Major novelists from Scott to Hardy.

421 Modern British Novel (3) Includes such authors as Lawrence, Joyce, Woolf.

422 Women Writers in England (3) Emphasis on the literary consciousness and works of British women writers in the nineteenth and twentieth centuries. (Same as Women's Studies 422.)

431 Colonial, Federal, and Early National American Literature (3)

432 American Romanticism and Transcendentalism (3)

433 American Realism and Naturalism (3)

434 Modern American Literature (3) World War I to the present.

435 American Novel Before 1900 (3) From earliest sentimental novels through Brown and Cooper, and major figures to 1900, including Hawthorne, Melville, Stowe, Clemens, and James.

436 Modern American Novel (3) Authors such as Faulkner, Steinbeck, Welty.

441 Southern Literature (3) Southern writing from colonial period into the twentieth century, including frontier historians, local color writers, and southern literary renaissance.

442 American Humor (3) Development of American humor from the early nineteenth century into the twentieth century, with particular emphasis on Mark Twain.

443 Topics in Black Literature (3) Contents vary according to particular genres, authors, or theories from 1845 to the present, including Langston Hughes and the Harlem Renaissance, Richard Wright and Gwendolyn Brooks, writing by Black women, international Black literature in English, and Black American autobiography.

451 Modern British and American Poetry (3) From Yeats and Frost to Auden, Stevens, and more recent poets.

452 Modern British and American Drama (3) O'Neill's works as precursors to modern dramatics, such as Williams, Miller, Albee, and representatives of Black theater, like Bullins and Baraka.

453 Continental Drama (3) Plays in English translation by major directors of the late Renaissance to the present, with some emphasis on the twentieth-century achievement.

454 Twentieth-Century International Novel (3) Such authors as Joyce, Camus, Kafka, Nabokov.

455 Persuasive Writing (3) Persuasive strategies in student and professional writing. Practice in mastering effective logical and emotional appeals.

456 Professional Writing (3) Principles and practices of writing for publication. Dissertations, theses, articles, and reports in science and technology. Prerequisite: 459 or consent of instructor.

459 Advanced Technical Writing (3) For students planning careers in industry, education, and government who need technical writing skills. Writing of definitions, process descriptions, sets of instructions, descriptions of mechanisms, recommendation reports, abstracts, proposals, and major reports. Prerequisite: Junior standing in student's major or consent of instructor.

460 Technical Editing (3) Editing technical material for publication. Principles of style, format, graphics, layout, and production management. Prerequisite: 456 and 459, or consent of instructor.

463 Advanced Poetry Writing (3) Development of skills acquired in Basic Writing Poetry course. Prerequisite: 363 or consent of instructor.

464 Advanced Fiction Writing (3) Development of skills acquired in Basic Writing Fiction course. Prerequisite: 364 or consent of instructor.

471 Sociolinguistics (3) Language in relation to society. Empirical and theoretical focus. Emphasis on large-scale units: tribes, nations, social groups. Prerequisites: 371 or 372 or Linguistics 200 or consent of instructor. (Same as Linguistics 471 and Sociology 471.)

472 Modern English Language (3) Phonological, morphological, and syntactic characteristics of major social and regional varieties of American English, with attention to their origins, functions, and implications for cultural pluralism. Prerequisite: 371 or 372 or Linguistics 200 or consent of instructor. (Same as Linguistics 472.)

474 Teaching English as a Second Language (3) Grammar of English with emphasis on particular grammatical difficulties of non-native learners of English. Basic phonological structures of English. Teaching grammar and phonology to non-native speakers with some attention to persuasive analysis of English with other languages. Second year of a foreign language. (Same as Linguistics 474.)

FINANCE

Accounting 201-202, Economics 201, and Statistics 201 are prerequisite to all Finance courses.
courses. Finance 301 is prerequisite to all 400 level courses.

301 Financial Management (3) Principles of financial management. Investment, financial planning, and asset management functions of the firm.

400 Special Topics (3) Seminar. Topic(s) announced prior to offering.

421 Investment Analysis (3) Principles and concepts of asset valuation in competitive and efficient financial markets. Basic analytical tools are developed and used to study valuation of different types of securities. Major writing requirement.

422 Portfolio Analysis and Management (3) Portfolio theory and evidence of behavior of security returns with a view to determining rational investment policy. Includes statistical analysis for risk and return of portfolios, portfolio evaluation and revision, capital market theory, and extensions of portfolio analysis. Prereq: 421.

430 Financial Markets (3) Role of short and long term financial markets in the process of capital formation and allocation. Theories and mathematics of interest rates in money and capital markets.

431 Financial Institutions (3) Management policies of the financial institutions including asset, liability and capital management. Legal, economic and regulatory environment and their implications for management. Financial institutions and changes in competition and changing trends in the U.S. Financial System.

450 Financial Management: Theory and Practice (3) Decision making topics in financial management including valuation, capital budgeting under uncertainty, cost of capital, strategic theory and dividend policy. Major writing requirement.

450 Advanced Topics in Financial Management (3) Contemporary issues in corporate finance, liquidity and current asset management, corporate growth and control, international financial management, and pension fund management. Prereq: 450.

470 Risk Management and Insurance (3) Identification, measurement and decision making with regard to insurance-type risks facing the firm. Emphasizes handling these risks in the most cost-efficient manner.

471 Estate and Financial Planning (3) Process of estate accumulation, safekeeping, and distribution, with particular emphasis on impact of insurance and taxation.


482 Urban Development and Finance (3) Economic analysis of determination of urban land value and urban infrastructure projects and their impact on the United States. Primary and secondary mortgage markets and economic analysis of the effects of these markets on urban development. (Same as Urban Studies 482.)

FOOD TECHNOLOGY AND SCIENCE

140 The Food Industry (3) Role of the food industry in providing an adequate, safe food supply for the United States and international markets. Interaction of the food industry with governmental agencies and consumers. 2 hours and 1 lab. F

268 Meat Evaluation and Grading (2) Grading standards for quality and yield; principles for evaluating beef, pork and lamb, and application of standards for institutional meat cuts. Practice grading, judging carcasses and cuts, and application of purchase specifications. F

360 Meat Science (2) Carcass characteristics of meat animals, muscle structure and composition, cut identification, curing, freezing and cookery. Sp

369 Meat Science Lab (1) Slaughter and processing methods and applications. Lab and poultry. Prereq: 369 or concurrent enrollment. Sp

401 Food Technology and Science Seminar (1-2) Review of scientific literature, oral and written reports. May be repeated: maximum 3 credit hours. Prereq: Senior standing or consent of instructor, F, Sp

410 Food Chemistry I (3) Reactions of proteins, enzymes, and food components. Study of physico-chemical interactions of food materials. Prereq: Chemistry 110 or equivalent. 2 hours and 1 lab. F

411 Food Chemistry II (3) Reactions of inorganic compounds, carbohydrates, lipids and vitamins in foods. Prereq: Chemistry 110 or equivalent. 2 hours and 1 lab. Sp

420 Food Microbiology (2) Physical, chemical and environmental factors moderating growth and survival of foodborne microorganisms; pathogenic and spoilage microorganisms affecting quality of foods and their control. Prereq: Microbiology 210, Coreq: 429, F

429 Food Microbiology Lab (3) Methods for examination, enumeration, cultivation and identification of foodborne microorganisms. Prereq: Microbiology 210, Coreq: 420, F

430 Sensory Evaluation of Food (3) Principles and methods of sensory evaluation of foods. Prereq: Basic Statistics 2 hours and 1 lab. F

440 Preservation of Food (3) Prevention of deterioration and spoilage of foods. Methods of preservation. Prereq: Agricultural Engineering Technology 422, 2 hours and 1 lab. Sp

450 Dairy Products I (3) Procurement, processing and distribution of fluid milk. Manufacture of butter, frozen and condensed dairy products. Prereq: Consent of instructor. 2 hours and 1 lab. F


460 Meat Products Technology (4) Processing methods of meats and various methods of preparation and food products. Effect of processing methods on product characteristics. Prereq: 369 or consent of instructor. 3 hours and 1 lab. F

470 Food Crop Products (3) Food products from plants emphasizing types, manufacturing systems, quality attributes and utility. Prereq: 3 hours Biological Science. 2 hours and 1 lab. Sp-E

480 Cereal Science and Bakery Products (3) Chemistry and technological properties of cereal grains; interactions of ingredients during production and storage of baked products. Prereq: 410 or 411 or equivalent. 2 hours and 1 lab. F-O

493 Special Problems in Food Technology and Science (1-3) Research problems in student's area of interest. Supervised field experience in approved food industry. May be repeated; maximum 6 credit hours. Prereq: Consent of instructor. E

FORESTRY

321 Forest Recreation (3) Philosophical foundation of recreation; planning, development, and management of forest recreation resources; interpretation of forest recreation values; formal and informal resolution. Prereq: 321.

322 Applied Silviculture (3) Application of silvicultural techniques; tree improvement; use of herbicides; fire management. Prereq: Forestry, Wildlife and Fisheries 312. Coreq: 333, 324, 325, and Entomology and Plant Pathology 306. Sp


324 Forest Resource Analysis (3) Growth and yield prediction; harvest determination; goal setting under multiple use concepts; approaches to regulation; financial aspects of forestry with computer simulation. Prereq: 311, 321, 322, 323, 324 and Entomology and Plant Pathology 306. Sp

325 Forest Resource Inventory and Surveying (3) Volume and growth estimation; timber appraisal; surveying techniques; road layout and construction as applied to forestry; timber harvest techniques. Prereq: Forestry, Wildlife and Fisheries 313. Coreq: 322, 323, 324 and Entomology and Plant Pathology 306. Sp

331 Wood Properties and Uses (2) Fundamental structures, properties and grades, wood identification. Prereq: Botany 110 or consent of instructor. Coreq: 332 for Forestry and Wood Utilization majors. Sp

332 Wood Identification (1) Macro and micro-identification of important commercial softwoods, hardwoods, and foreign woods. Prereq: Forestry, Wildlife and Fisheries 311 or consent of instructor. Coreq: 331 for Forestry and Wood Utilization majors. 1 lab. Sp

421 Forest and Wildland Resource Economics (3) Production functions, supply-demand and market analysis; non-market programs and projects; economic analysis and decision models; investment and financial analysis; environmental economics; taxes; forest products marketing. Prereq: 324 or consent of instructor. F

422 Forest and Wildland Resource Policy (3) Policy development; criteria for policy determination; forest and wildland law and regulation; theory of conflict resolution; formal and informal resolution. Prereq: Senior standing. F

423 Forest Recreation Planning and Management (3) Planning processes, master and site planning; design projects; management strategies, methods of visitor and recreation site management; case studies. Weekends field trips may be required. Prereq: 321, 323, Ornamental Horticulture and Landscape Design 280, or consent of instructor. 1 hour and 2 labs. Sp

431 Solid Wood Processing (3) Production processes for solid wood products including sawmilling, secondary drying, finishing, and wood treatment. Prereq: 331 and 332, or consent of instructor. 2 hours and 1 lab. Sp

432 Practicum in Wood Products (2) Standard laboratory procedures used in the evaluation of wood and wood products. Plant visitations including sawmills, pulp, plywood, furniture, composite panel, and wood treatment, Prereq: Senior standing in Wood Utilization or consent of instructor.

433 Wood Composites and Gluing (3) Principles of adhesion; wood adhesives; fundamentals of plywood and panel manufacture; testing mechanical properties; bonding strength and durability. Prereq: 331 and 332, or consent of instructor. 2 hours and 1 lab. F

434 Measurement and Marketing of Wood Products (3) Planning processes, master and site planning; design projects; marketing systems used for sale and transfer of wood products. Application of market principles and analysis to wood products markets and economic structure of wood products industry. Prereq: 431, 433 and Forestry, Wildlife and Fisheries 313, or consent of instructor. Sp


FORESTRY, WILDLIFE AND FISHERIES

211 Introduction to Forestry, Wildlife and Fisheries (3) History of natural resources policies and prac-
of A in 211 may enter 212 with permission of instructor. Credit for students receiving a grade of A or B in the course.

291-292 French Literature in English Translation (3,3) 291-From the origins through the Age of Voltaire. Song of Roland, Rabelais, Montaigne, the Classical period, and Voltaire. 292-Diderot, 19th and 20th centuries; Flaubert, Rimbaud, Sartre, Camus. May not be counted toward the major or minor. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

300 French Transition (2) Development of linguistic skills necessary for satisfactory work in courses above 200. Recommended for students who would benefit from additional training beyond 212 in basic skills of reading, spelling and writing French. May not be counted toward the major or minor.

301-302 Elements of French for Upper Division and Graduate Students (3,3) Elements of language, elementary and advanced readings. Open to graduate students preparing for language examinations, and upper division students desiring reading knowledge of the language. Undergraduate credit only. Not for credit for those having had 111-112 or equivalent. No auditors.

311-312 History of French Literature (3,3) Chronological view of French literature in relation to the specific historical events that have influenced it. Prereq: 212, 216 or equivalent.

313 Aspects of French Literature (3) Study of masterpieces from the great literary movements and countercurrents. Prereq: 212 or equivalent.

324 Women in French Culture (3) Role of women in shaping French history and culture. Feminists (George Sand), writers (George Sand, Mme de Maupin), scientists (Marie Curie). Taught in English. May not be counted toward the major or minor. (Same as Women's Studies 324.)

341-342 Intermediate Composition and Conversation (3,3) Grammatical analysis of modern French prose; review of grammar. Stresses in class contact rather than outside preparation. Meets two hours a week for one semester. Prereq: 212, 218 or equivalent.

345 French for Business (3) Contemporary French language as it applies to business transactions. Understanding and composing business letters; oral communication and elements of French culture related to good business practices. Either 342 or 345 may be applied toward the major but not both. Prereq: 341 or consent of instructor.

400-401 Consecutive and Simultaneous French-English and English-French Translation (3,3) 400-Consecutive Translation to and from English. Introductory section for students with a knowledge of the target language only. 401-Simultaneous Translation to and from English, training of students with good knowledge of French for consecutive interpretation. Translates from French into English, and vice versa, on a variety of subjects such as business, politics, science. Prereq: 342, 345 or equivalent. Preferably taken in sequence.

410 Medieval French Literature (3) Major representative works of Medieval French Literature. Texts in modern French. Prereq: 212, 216 or equivalent. (Same as Medieval Studies 410.)

411 French Literature of the 16th Century (3) High points of the 16th century French literature. Excerpts from Rabelais and Montaigne; readings of poems from the writers from Lyon and members of the Plaideau. Prereq: 212, 216 or equivalent.


413 French Literature of the 18th Century (3) Major works of the Enlightenment. Prereq: 212, 216 or equivalent.


440 Capstone Experience in French (4) Synthesizing senior colloquium and tutorial in which students reflect on the rôles of the discipline from a multi-dimensional point of view. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

GEOGRAPHY

101-102 World Geography (3,3) Selected topics and world regions, especially those with problems or situations of contemporary interest, to illustrate geographical points of view, concepts, and techniques. Must be taken in sequence.
# Geography of the Natural Environment (4,4)
Characteristics and processes of the earth’s surface and lower atmosphere; their interaction to produce a world of diverse environments significant to humanity. Must be taken in sequence. 3 hours lecture and 2 hours lab per week. Not open to students who have taken 131-132.

# 131-132 Geography of the Natural Environment
Survey of the changing human geography of the United States during four centuries of settlement and development. Emphasis on changing population patterns, development of agricultural regions, and patterns of urban-industrial development. Prereq: 361 or consent of instructor. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

# 361 Regional Geography of the United States and Canada
Physical, economic, and cultural distributions as they interrelate to give distinctive character to regions of the United States and Canada. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

# 362 Regional Geography of the United States and Canada
Physical, economic, and cultural distributions as they interrelate to give distinctive character to regions of the United States and Canada. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

# 363 Geography of the American South (3)
Geographical appraisal of the southeastern United States, including physical environment and human resources. Origin and development of contemporary economic and cultural traits of the area. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

# 365 Geography of Appalachia (3)
Interrelation of physical, economic, and social patterns that give distinctive character to the region and its parts, especially in southern Appalachia. Appalachia in perspective in the current American scene. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

# 372 Geography of Middle America (3)
Physical, cultural, and economic characteristics of Mexico, Central America, and the West Indies. (Same as Latin American Studies 372.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

# 373 Geography of South America (3)
Physical, cultural, and economic characteristics of the countries of South America. (Same as Latin American Studies 373.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

# 375 Geography of the Soviet Union (3)
Geographical appraisal of the Soviet Union, including physical environment, economic patterns, and human resources. (Same as Russian and East European Studies 375) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

# 376 Geography of Africa (3)
Physical, cultural, and economic characteristics of Africa, with particular emphasis on the area to the south of the Sahara. (Same as Afro-American Studies 376.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

# 411 Computer Mapping and Geographic Information Systems (3)
Concepts, management, and presentation of digital data for spatial analysis, with emphasis on cartographic data structures. 2 hours lecture and 2 hours lab per week. Prereq: 310 and knowledge of a computer language or consent of instructor.

# 412 Cartography (3)
Cartographic techniques applied to the design, compilation, and reproduction of maps and other graphics. 2 hours lecture and 2 hours lab per week. Prereq: 310 or consent of instructor.

# 413 Remote Sensing: Types and Applications (3)
Principles and uses of remote sensing imagery, digital data, and spectral data, with particular emphasis on geographic interpretation and mapping techniques. Prereq: 310 or consent of instructor.

# 415 Quantitative Methods in Geography (3)
Geographic application of statistical techniques, point pattern analysis, and analysis of areal units. Prereq: Mathematics 115 or two semesters of calculus or consent of instructor.

# 419 Practicum in Cartography/Remote Sensing (2-5)
Supervised practice in design and production of maps and other graphic materials in the Cartographic Services Laboratory or a similar organization. Prereq: Written consent of department prior to registration.

# 421 Geography of Folk Societies (3)
Geographical study of folk societies, with emphasis on folk material culture and rural settlement, with examples drawn from eastern North America and selected foreign areas. Prereq: 101-102 or 320 or consent of instructor.

# 425 Historical Geography of the United States (3)
Survey of the changing human geography of the United States during four centuries of settlement and development. Emphasis on changing population patterns, development of agricultural regions, and patterns of urban-industrial development. Prereq: 361 or consent of instructor. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

# 433 The Land-Surface System (3)
Nature and regional variations in relationships among surface form, water, vegetation, and surface materials. People as evaluators and agents of change. Prereq: 131-132 or 330 or consent of instructor.

# 434 Climatology (3)
General circulation system leading to world pattern of climates. Climatic change and modification, and interrelationships of climate and human activity. Prereq: 131-132 or 330 or 334 or consent of instructor.

# 435 Biogeography (3)
Study of the changing distribution patterns of plants and animals on a variety of spatial and temporal scales. The effects of continental drift, Pleistocene glaciation, and human activities on world biota are emphasized. Prereq: 131-132 or 330 or consent of instructor.

# 436 Water Resources (3)
Global water resources and hydrologic processes, including water availability, flooding, and water quality issues examined from physical and economic geographic perspectives. Prerequisites: 131-132 or 330 or consent of instructor.

# 441 Urban Geography (3)
Concepts and theories concerning development and significance of cities and their urban morphology of cities. Prereq: 101-102 or 141 or 340 or consent of instructor. (Same as Urban Studies 441.)

# 443 Rural Geography (3)
Geographical appraisal of rural areas of the United States, focusing on small towns and urban fringes. Problems and potentials of rural America. Prereq: 101-102 or 141 or 340 or consent of instructor.

# 445 Geography of Resources (3)
Factors related to variations in resource availability from time to time and place to place, with particular emphasis upon energy and metallic resources. Prereq: 101-102 or 141 or 340 or consent of instructor.

# 449 Geography of Transportation (3)
Examination of transportation systems, emphasizing their effects on trade patterns, land use, location problems, and development. Prereq: 141 or 340 or consent of instructor.

# 450 Process Geomorphology (3)
(Same as Geology 450)

# 491 Foreign Study (1-15)
Prereq: Written consent of department required prior to registration.

# 492 Off-Campus Study (1-15)
Prereq: Written consent of department required prior to registration.

# 493 Independent Study (1-15)
Prereq: Written consent of department required prior to registration.

# 499 Proseminar in Geography (3)
Major themes in geography, especially trends over the past 40 years. Required for majors. Not open to graduate students. Prereq: Senior standing and completion of at least 12 hours of major or minor requirements in geography. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

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# Geology

100 The World's Oceans (3)
Geological, physical, and biological aspects of oceans and human interactions with the marine environment. 3 lecture hours per week.

101-102 General Geology I, II (4, 4)
Physical processes within and upon the Earth's surface, including the formation of rocks, plate tectonics and earthquakes, and landscapes. 102-Fossiliferous rocks and ancient environments, plus a review of 4.5 billion years of earth history. Must be taken in sequence. 3 lecture hours and 2-2 hour lab or field period.

201 Fossils and the Meaning of Evolution (3)
Theories and evidence of evolution presented in a non-technical manner, with emphasis on its relevance to modern society. Topics include creationism, purpose of life, progress. 2 lecture hours and one 2-hour lab. May not be applied toward the Geology major.

203 Geography of National Parks (3)
Geologically spectacular landscapes and geologic history of national parks. (Same as Geology 203.) Prereq: 100. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

210 Basic Geology for Engineers (2)
Materials and structures of the earth. For College of Engineering students only. 2 lecture hours and one 2-hour lab or field period.

310 Mineralogy (3)
Crystallography and study of minerals. Laboratory includes hand specimen, optical and x-ray methods of identification. Prereq: 101. Chemistry 120-130 or equivalent. 2 lecture hours and one 2-hour lab.

320 Paleobiology (3)
Fossils and their uses in functional morphology, paleoecology, biogeography, biostratigraphy, and evolution. Prereq: 102 or consent of instructor. 2 lecture hours and one 2-hour lab or field period.

325 Geological History of Land Organisms (3)
Origin and development of terrestrial organisms in space and time with emphasis on the fossil and present records of land plants and animals. Prereq: Elementary biology sequence or consent of instructor. 2 lecture hours and one 2-hour lab or field period.

330 Igneous and Metamorphic Petrology (3)
Classification and properties of igneous and metamorphic rocks, the processes that produce them, and the tectonic environments in which they form. Prereq: 310, 2 lecture hours and one 2-hour lab.

340 Stratigraphy and Sedimentation (3)
Stratigraphic principles and techniques. Prereq: Early processes and interpretation of depositional environments. Prereq: 101, 102 and 310. 2 lecture hours and one 2-hour lab or field period.

345 Geology of East Tennessee (1)
Geology of the Southern Appalachians in Tennessee. Prereq: Completion of major core courses or consent of instructor. 1 lecture hour plus fieldtrips.
460 Principles of Geochemistry (3) 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 150-150; recommended: 101-102. 3 lecture hours and one 2-hour lab. (Same as Botany 346.)

470 Applied Geophysics (3) Basic principles and applications of seismic, gravity, magnetic, and electrical prospecting methods. Recommended: Math 141-142 or 147-148 and Physics 131. 2 lecture hours and one 2-hour lab.

480 Principles of Economic Geology (3) Ore-forming processes, classification of mineral deposits, survey of different types of mineral deposits with examples, and metallogeneres. Prereq: 310 and 330 or equivalents. Recommended: 2 lecture hours and one 2-hour lab.

485 Principles of Geohydrology (3) Principles governing flow of water through rock systems. Applications to groundwater contamination, ore-forming hydrothermal fluids, and paleohydrologic systems. Prereq: 460. 2 lecture hours and one 2-hour lab.

491 Foreign Study (1-15) Prereq: 311-312 or equivalent or consent of department.

492 Off-Campus Study (1-15) Prereq: 311-312 or equivalent or consent of department.

493 Independent Study (1-15)}

GERMAN
101-102 Elementary German (3,3) Must be taken in sequence.

107-208 Honors: Elementary and Intermediate German (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. Underclassmen must have an A average. A grade of C or above must be achieved in 107 in order to continue German 208. A student obtaining a grade of D or better in 107 may continue with German 102. This sequence is equivalent to 101-102 and 201-202 and allows the student to enter all 300-level German courses.

111 Language Laboratory (0) Prereq: 101 or 107. 332 hours of 300-level German courses, including courses in literature, linguistics, translation, and non-literary fields. Students or student groups may be required to take the Advanced Placement examination or the German Language Proficiency examination for language credit.

112 Language Laboratory (0) Prereq: 101 or 107. 332 hours of 300-level German courses, including courses in literature, linguistics, translation, and non-literary fields. Students or student groups may be required to take the Advanced Placement examination or the German Language Proficiency examination for language credit.

201-202 Intermediate German (3,3) Must be taken in sequence. Prereq: 102 or equivalent.

301-302 Introduction to German Literature (3,3) Prereq: 202 or equivalent. Prereq: 301-302 or consent of instructor. 3 lecture hours and one 2-hour lab. (Same as Modern German 301.)


305 Readings in German (3) Topics in both literary and non-literary fields. Students or student groups are encouraged to suggest topics for future courses. May be repeated twice with approval of department. Prereq: 202 or equivalent.

311-312 Conversation and Composition (3,3) Prereq: 202 or equivalent.

323 German Film (3) A study of the German cinema from the earliest days to the present. Writing emphasis. Prereq: 202 or equivalent.

325 Modern German Novel in English Translation (3) Great twentieth-century German novels, including study of novel theory and criticism. No foreign language credit. Writing emphasis. Prereq: 202 or equivalent.

326 German Drama in English Translation (3) German drama from the Enlightenment to the present, including study of dramatic theory and criticism. No foreign language credit.

331-332 Elements of German for Upper-Division and Graduate Students (3,3) Elements of language, elementary and advanced readings and a final 10,000-word translation project. Open to graduate students preparing for language examinations, and upper-division students desiring reading knowledge of the language beyond the intermediate level. Credit allowed only. No credit for students who have completed 101-102 or 107. 332 may be repeated only once for credit. A.B., B.C., no credit for auditing.

363 Modern German Culture (3) German culture from the mid-nineteenth century to the present: art, music, literature, society, state. Readings in English for non-majors and in German for majors. Major credit, but 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. Writing emphasis: course at least one in-class examination and 3000 words of writing outside the classroom.

411-412 Advanced Conversation and Composition (3,3) Prereq: 311-312 or equivalent or consent of department.

420 Selected Topics in German Literature from 1750 to the Present (3) Prereq: 6 hours of 300 courses excluding 331-332 and courses in English translation, or equivalent.

421 German Lyric Poetry (3) Prereq: 6 hours of 300 courses excluding 331-332 and courses in English translation, or equivalent.

422 German Drama (3) Prereq: 6 hours of 300 courses excluding 331-332 and courses in English translation, or equivalent.

423 German Narrative Prose (3) Prereq: 6 hours of 300 courses excluding 331-332 and courses in English translation, or equivalent.

424 German Literary Movements (3) Major periods in the development of German literature since 1750, with emphasis on the problems and pitfalls of periodization.

425 Introduction to Descriptive Linguistics (3) Same as Linguistics 435, French 425, Spanish 425, and Linguistics 425.

426 Methods of Historical Linguistics (3) Phonetics, distinctive feature analysis, sound change types, nature of sound change, principles of reconstruction and fundamental assumptions about language change through time. Non-phonological linguistical change, language families, Proto-Indo-European and other proto-languages. Prereq: 6 hours of upper division foreign language courses excluding courses in translation or graduate reading courses. (Same as Russian 426, French 425, Spanish 425 and Linguistics 426.)

435 Structure of the German Language (3) Contrasts English-German segmental and suprasegmental phonemes, contrastive English-German linguistic structures, selected topics in advanced German grammar and syntactic analysis. Prereq: 6 hours of upper division German language courses excluding courses in translation or graduate reading courses. (Same as Linguistics 435.)

436 History of the German Language (3) Development of the German language from Indo-European through Proto-Germanic, Old High German, Middle High German to New High German. Internal and external linguistic history of German speech. Prereq: 6 hours of upper division German language courses excluding courses in translation or graduate reading courses. (Same as Linguistics 436.)

485 Business German (3) German used in fields of business, government, administration and economics. Prereq: 6 hours of upper division German excluding courses in translation and graduate courses.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

497 Senior Honors (1-6) Admission by consent of department. May be repeated. Maximum six hours.
121-122 Beginning Greek (3,3) Must be taken in sequence.

261 Intermediate Greek: Grammar and Reading (3) Systematic review of Attic Greek and readings from selected authors. Prereq: 122.


401 Greek Poetry (3) Epic, lyric, drama. Authors vary. Prereq: 261.

402 Greek Prose (3) History, philosophy, and oratory. Authors vary. Prereq: 261.

405-406 Selected Readings from Greek Literature (3,3) For advanced students in Greek, the study of plays, the historical writings, the poetry of ancient Greece in the original Greek. May be repeated for credit. Maximum 9 hours. Prereq: 401-402 or consent of instructor.

HEALTH

110 Personal Health and Wellness (3) Information and behavior necessary to approach health and wellness scientifically and to develop confidence in judgments affecting personal health and wellness. E

200 Seminar in Human Sexuality (2) Problems and responsibilities of being male and female as they relate to health and wellness. Satisfactory/No Credit only. F, Sp

225 Alcohol/Drugs and the College Student (2) Problems related to use and abuse of substances potentially harmful to health and wellness. Covers alcohol, drugs, tobacco and other substances. Satisfactory/No Credit only. F, Sp

230 Cardiopulmonary Resuscitation (1) Theory and skills to implement basic cardiac life support following cardiac arrest due to such conditions as heart attack, drowning, electrocution, suffocation, poisoning, drug intoxication, and vehicular and other accidents. Educational and preventive aspects of controlling cardiovascular disease. Leads to basic life support certification. F, Sp

300 Health Education, Promotion, and Behavior (3) Health education goals, roles, target populations in school, community and health care settings; health careers and opportunities; health behavior and intervention techniques; health appraisal techniques; health promotion strategies. F, Sp

305 The School in Community Health (2) Roles and responsibilities of teachers in school health programs with emphasis upon: health problems of the school child, recognition and methods of handling them; healthful school environment; school health services and community resources, health personnel, voluntary and official health agencies. May not be taken for credit by health majors. F, Sp

306 Health Instruction in Elementary Grades (2) Topics appropriate for school-aged child in elementary grades. Organization and presentation of health content emphasized. Teachers become familiar with health materials, curricula, literature, community resources and planned procedures for teaching health. Prereq: 305 and admission to Teacher Education Program. F, Sp

310 Advanced First Aid and Emergency Care (3) Theory and practice of first aid and emergency care. Reviews emergency information for developing functional first aid capabilities of lay persons. Course leads to Advanced First Aid and Emergency Care certification. Applicant must be at least 18 years old for certification. S

325 Planning, Evaluation and Administration of Health Programs (3) Organization of health programs in school, community and health care settings at public and private levels. Skills for developing health education and health promotion efforts. F

330 Wellness Through Health, Leisure and Physical Activity (3) Emphasis on taking personal responsibilities for one's health. Includes topics related to the healthy lifestyle, and provides specific guidelines of how to change inactive behaviors. (Same as Physical Education 330.)

375 Health Education: Curriculum, Methodology, Communications (3) Principles of health education curriculum, methodology and communication strategies for teaching/transmitting health education information. Sp

380 Research and Grant Writing (2) Study and application of research methods and grant writing techniques for health education. Skills for reading and interpreting journal and research articles. Exercises and student projects to develop a research or grant proposal. Emphasis on development and review processes. Sp

400 Consumer Health (3) major consumer health care providers and health care services; selecting, purchasing, evaluating and financing medical and health care services/products. (Same as Public Health 400.) E

405 Alcoholism and Alcohol Education (3) Factors which make alcoholism a serious health and safety problem. Various types of instructional/educational and intervention programs. F, Sp

406 Death, Dying and Bereavement (3) Aspects of dying, death and handling the trauma of loss. Medical, financial, physical, legal and social implications of death. F, Sp

410 Pre- Internship Seminar (1) Objectives and policies of internship program. Must be completed before the term immediately preceding the internship. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only. Sp, Su

414 Physical Activity and Fitness (2) (Same as Physical Education 414.)

415 Field Evaluation of Physical Fitness (1) (Same as Physical Education 415.)

420 Sex Education As It Relates to Human Sexuality (3) Science of human sexuality. Emphasis on the trends, issues, content of sex education. E

425 Women's Health (3) Factors influencing women's health and women as consumers in nation's health service delivery systems. Study of health problems/concerns of women and techniques for prevention, maintenance and/or correction. (Same as Women's Studies 425.) E

430 Suicide and Crisis Intervention (3) Factors which make suicide a serious health problem. Assessment, intervention, and prevention techniques. Sp

435 Substance Use and Abuse (3) Drug and alcohol abuse problems and suspected causes: pharmacology of drugs, society, strategies for intervention and education. Sp

465 Aging and Health (3) Aging process in a health perspective as it relates to health promotion and wellness of the aged. F, Sp

470 Special Topics (1-3) For advanced students, teachers, school administrators, nurses and other paraprofessional personnel. Lectures, demonstrations, films, field trips, and supervised research in special health/wellness or health promotion issues. May be repeated. Maximum 12 hours. E

475 Directed Independent Studies (1-3) Individual identification and study of a health/wellness or health promotion problem/issue. Prereq: Consent of instructor. May be repeated. Maximum 12 hours. E

481 Internship I: Grades 7-12 (3-6) Methods and theories of teaching. Internship is completed in local public schools. Application for internship should be made upon admission to Teacher Education Program. Prereq: 410 and admission to Teacher Education Program. Sp

482 Internship II: Grades 7-12 (3-9) Demonstration of professional competence in planning, instruction, and classroom management. Internship is completed in local public schools. Prereq: 481 and admission to Teacher Education Program. Satisfactory/No Credit only. Sp

483 Field Practice (6) Off-campus health internship or field practice in an educational or other agency with qualified professional. Prereq: Consent of instructor. E

510 Trends and Issues in Health Education (3) History, philosophy, principles, programs, and trends of and in health and health education. F

529 Sex Education and Human Sexuality (3) Educational and psychological theory, techniques, materials to be used in school, community, or health care facilities. Sp

530 Curriculum Development for Health Education Programs (3) Current health curriculum for elementary and secondary schools, community and health care settings. Su

540 Evaluation in Health Education (3) Principles of evaluation of health instruction and programs in regard to health knowledge, attitudes, and behavior. Construction of instruments and criticism of existing instruments. Sp

HISTORY

151-152 Development of Western Civilization (3,3) Historical survey of the civilization of the western world from 151-Ancient world to 1715. 152-1717 to present. E

157-158 Honors: Development of Western Civilization (3,3) Consent of department required. 157-F; 158-Sp Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

161-162 A History of World Civilization (3,3) Historical survey of world civilization. 161-Origins to 1900. 162-1945 to present. 161-F, 162-Sp Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

195-196 Afro-American History: An Introduction (3,3) 195-Afro-American experience to 1890. Traditional African societies from which Afro-Americans emerged; evolution of prejudice and racism in America; institution of slavery; free Negroes; Civil War and Reconstruction. 196 Afro-American experience from 1890. The Afro-American struggle for political, social, and equal society; leaders of the struggle, their philosophies and programs; responses of black community institutions to the challenges of the 20th century; the rise of the urban ghetto; the Civil Rights and Black Power movements.

197 The City in Europe, 1000-1900 (3) Urban growth, emphasizing the relationship between the economic and social foundation of the cities, their political and cultural development and their physical structure.

251-252 History of the United States (3,3) 251-Settlement to 1877. 252-1877 to present. E

253-254 United States History for International Students (3,3) 253-Settlement to 1865. 254-1865 to present. F, Sp

257-258 Honors: History of the United States (3,3) Prereq: Consent of department. 257-F; 258-Sp

307 Honors: Introduction (3) Historical analysis and interpretation, philosophy of history, principles and techniques of research. Required of students working for honors in history. Prereq: Consent of department.

308 Honors: Historical Problems (3) Application of techniques and insights from 307 to selected historical issues to emphasize problems of evidence, interpretation, and objectivity. Required of students working for honors in history. Prereq: Consent of department.

310-311 The Ancient World (3,3) 310-Development of Greek democracy; its successes and failures; polls crisis of the fourth century B.C.; emergence of Hellenistic civilization. 311-Origins of Roman imperialism and its consequences for empire, socioeconomic changes, constitutional crises, emergence of military and political autocracy.
Courses of Instruction

312-313 Medieval History (3,3) 312-Early Middle Ages: 300-1000. The emergence of medieval society and institu-
tions. 313-Later Middle Ages 1100-1400. Height of me-
dieval civilization, and its waning in the fourteenth cen-
tury. (Same as Medieval Studies 312-313.)

314 Renaissance Europe (3) The period traditionally seen as the transition from the Middle Ages to the modern world. Interrelationship of cultural, social, eco-

demic, political and intellectual developments, with an emphasis upon historical interpretation.

315 Reformation Europe, 1500-1650 (3) The period during which the Christian Church witnessed religious dis-

ciety and insecurity, political centralization, intellectual skepticism, the origins of modern science, and the witch craze. (Same as Religious Studies 315.)

316 Early Modern Europe, 1650-1800 (3) Dynamic conflict of a search for order in an age of revolutions, seen in the continued push for political centralization, the impact of the scientific revolution, the intellectual flowering known as the "Enlightenment", and the Eng-

lish and French revolutions.

319 Modern Europe, 1750-1914 (3) Political, industrial and intellectual revolutions against traditions. Topics such as the modern population explosion, urbaniza-
tion, the political emergence of the middle class and the masses, nationalism, imperialism, rationalism and Revolutionary and political ideas. Writing-emphasis course: at least one in-class essay exami-
nation and 3000 words of writing outside the classroom.

320 Contemporary Europe, 1900-Present (3) The trans-
formation of industrial society through the transformation of the European nation-state. Topics such as war and depression and the consequent polit-
ical, social, and cultural change: the rise of communism; decolonization; the impact of Freud, Einstein and exist-
tentialism; welfare states; and the problems of European uniformity in the context of diverse cultures: at least one in-
class essay examination and 3000 words of writing outside the classroom.

321 New Testament Origins (3) (Same as Religious Studies 321.)

330-331 History of England (3,3) 330-to 1668. 331-
1689 to the present. Medieval state, church, and soci-
ey origins of An Anglo-Saxon Way, the medieval and parlia-

gmentary government, the Reformation, 17th Cen-
tury revolutions, commercial, agricultural and industrial revolu-
tions; class conflict, empire, the welfare state, world wars, economic crisis.

332-333 History of France (3,3) 332-The emergence of modern France from the Renaissance to 1789. 333-France since the Revolution, 1789 to present.

334-335 History of Germany (3,3) 334-Germany I, to 1871. (Same as German Studies 334.) Wealth of nation, failure of统一, development of the German lands, from the medieval empire to its disintegration, through dynastic and religious realignments, to the Austrian-Prussian dualism in the time of Fredrick the Great and Maria Theresa, culmi-
nating with the end of the older order in the Age of Napolleon. 335-Germany II, Since 1900. The Quest for Nationhood. The evolution of modern Germany through revolution, industrialization and wars, from Metter-

nich's Confederation, to Bismarck's Second Reich, to the Weimar republic to Hitler's Third Reich, to Aden-
auer's Federal Republic and the present nation of two states.

336 A History of Austria and Central Europe: Fron-
tier and Civilization Center (3) Austria's development, as part of the Hapsburg collection of states, and its seces-
sion from a multi-national empire and great power status to an unstable truncated republic, to an exploited Third Reich, and from an Allied occupation zone to — finally—an independent neutral nation at the crossroads of Europe. Major themes are balance of power politics, relationships with neighboring peo-

lies, cultural achievements, economic integration and disintegration, and the problems of centralization versus national diversity.

340-341 History of Russia (3,3) 340-To the middle of the 18th century. 341-From the middle of the 18th cen-
tury, (Same as Russian and East European Studies 340-341)

350-351 Early Modern America, 1607-1815 (3,3) A thematic study of American history in the formative years: 350-to 1776; 351-1776 to 1815.

352 The United States during the Jacksonian Era, 1815-1860 (3) An examination of the major economic and political developments in antebellum America within the framework of the struggle between nationalism and sectionalism.

353 The Civil War and Reconstruction Eras, 1860-
1877 (3) An examination of the major political, eco-
nomic, and social developments in the United States during the Civil War and Reconstruction eras.

354 United States, 1877-1933 (3) America's political, economic, and social development from the Gilded Age through the Great Depression.

355 United States, 1933 to the Present (3) American experience from Roosevelt's New Deal through World War II and the Cold War to present. Emphasizes domes-
tic history but includes military and foreign policy.

356-357 History of Latin America (3,3) 356-Colonialism and Independence, 1600-1825. 357-Nu-

tional Development, 1825 to present. (Same as Latin American Studies 356-357.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

362-363 History of East Asia (3,3) 362-East Asia: History and Culture to 1600. Chiefly China and Japan; Korea and Vietnam also included. Confucianism, Bud-

dhism, social, economic, and political change: feudalism. Comparison and contrast with Western his-
tory and culture. 363-Modernt Eastern Asia since 1600. China, Japan, Korea and Vietnam. Comparative mod-
erization: Western impact, cultural transformation, communist movement, and Japan's militarism and post-economic crisis. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

364 History of China (3) Changes and continuities of the world's longest established nation through the quarter of the human race; similarities and differences between China and Western civilizations; Chinese rev-

olutions in historical context.

365 History of Japan (3) Japanese history from my-
thological origins to the postwar age, with empha-
sis on politics and society. Topics include the influence of disease on society, Japanese Feudalism, popular culture in the 1700s, the Meiji Restoration, and Japa-
nese militarism.

366 Ancient Near Eastern Civilization (3) Bronze and Iron Ages. Origin of civilization; institutional struc-
tures, imperialism, cultural traditions and their perpetua-
tion.

370-375 History of the Middle East (3,3) 370-Islamic civilization to the sixteenth cen-
tury. 370-The Middle East from the sixteenth to the twentieth century. Impact of the West and background of current problems in the area. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

371-372 African History (3,3) 371-Ethnic groups of the southern and western regions of sub-Saharan Africa and the conflict and change occurring there from 1000 A.D. through the World War I era in 1919. 372-Dynamics of African independence since 1919. Achievement of independence by west African nations and the failure of Africans in the south to achieve that goal. Issues of urbanization, industrialization, and for-
mation of a national identity within the twentieth-
century African context. (Same as African Studies 371-372.)

373 Historical Issues (3) Broad, thematic issues in historical perspective. Lecture-discussion. Especially suitable for non-majors; also open to majors.

374 The West and the Third World Since 1870 (3) The growth of the modern West and its effect on the Third World, Africa, Asia, and Latin America since 1870 across a broad spectrum of critical issues. Includes economic interdependence and underdevelo-pment; Modernization, Literacy, women; Western world views, and the search for individual identity in circumstances of cultural disruption. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

375 Revolutions in Historical Perspective (3) Com-
parative history of major revolutions which transformed political, social, and economic structures and values, such as those in France, Russia, China, Mexico, and India. Causes and consequences of major revolutions or major phases and outcomes. Relations between leaders and masses. Major theories of revolution. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

376 History Behind the News (3) Contemporary anal-
ysis and the historical background of selected newsworthly events in North and South America, Europe, and the Middle East; and an analysis of the major historical perspectives. May be repeated by non-majors. Maximum 6 hours.

379 American Issues: Individualism and Community (3) Ways in which Americans have organized their lives so as to retain the benefits of individual and small group identity while seeking to achieve the pur-
poses that come from larger shared values and goals. Topics include conflicting and competing tendencies toward laissez-faire and "Americanism" and ethnic identity. Writing-emphasis course; at least one in-
class essay examination and 3000 words of writing outside the classroom.

380 American Issues: War and the Peaceful Ideal (3) Evolution of the dual tendency among Americans to express abhorrence to war and imperial conquests and to express determination to express abhorrence to war and imperial conquests and to engage in war and exercise economic or political power to achieve political goals. May satisfy history major requirements except those of geographical distribu-
tion. May be repeated by non-majors. Maximum 6 hours.

381 Historical Issues (3) (Same as History 381-382.)

407-408 Honors: Senior Paper (3,3) 407-Supervised research, bibliographical search, conceptual clarification, research. 408-Organization and writing of the senior honors paper. Both are required of students working toward honors in history.

430-431 European Intellectual and Cultural History (3,3) 430-Revolution to 1789. 431-Romanticism to 1875. 430-431.

432 Women in European History (3) Comparative analysis of the roles of women in Medieval, Rena-
issence and Victorian Europe. Relationship between family structure, sexual attitudes and the economic and political roles of women with an emphasis on autobiographical writings by women. (Same as Women's Studies 432.)

443 War and Society in Europe from Medieval to Modern Times (3) Relationship between the nature of war and society in Europe which covers medieval, monarchical and modern warfare, culminating in the World Wars of the 20th Century.

444 American Mind, Mood and Society (3) Social and cultural history and thought from mythology behind colonization to major beliefs and values which form the foundation of popular culture in the United States. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

445 The Afro-American Experience from the Colonial Period to the Present (3) Topics in 19th and 20th century African and Pan-African his-
tory and the effect of education on the status of Blacks. (Same as Afro-American Studies 445.)
449 History of Tennessee (3) Tennessee's history from the 18th century to the present.

450 History of American Foreign Relations (3) Rise of United States from feeble nation to global power; ideology of expansionism and United States response to challenges of autarchy, communism and third world nationalism.

451 United States Military History, 1754 to the Present (3) The nation's arms and means used to attain them, shifting strategy, tactics and weaponry involved in wars, and relationship between American society and its armed forces. (Same as Mil-Soc 430.)

452 The American Experience in World War II (3) Diplomacy and warfare in Europe and Asia and the impact of the war on American society. (Team-taught course.)

453 Women in American History (3) Approaches of 432 applied to American society. (Same as Women's Studies 453.)

454 Cities and Urbanization in American History (3) Origins, growth, and influence of American cities in development of the nation, from colonial era to present. (Same as Urban Studies 454.)

455 Local and Regional History (3) History of the concept of regionalism, the applicability of regionalism, and an analysis of the United States regional mosaic.

456 History of Sports in the United States (3) 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.

459 Introduction to Quantitative Methods for Historians (3) Collecting, collating, coding and analyzing machine-readable data with SAS (Statistical Analysis System). Use practical historical problems in urban and rural perspectives.

470 Studies in British History (3) Variable content. Selected themes and issues in British history. May be repeated. Maximum 9 hours.

471 Studies in Western European History (3) Variable content. Particular aspects of Western European history such as witchcraft, revolutions, or nationalism. May be repeated. Maximum 9 hours.

472 Studies in Central European History (3) Variable content. May be repeated. Maximum 9 hours.

473 Studies in Eastern European History (3) Variable content. Particular aspects of Eastern European history, especially on Russian and Polish history. May be repeated. Maximum 9 hours.

474 Studies in Medieval and Early Modern Europe (3) Variable content. Particular aspects of medieval and early modern Europe. May be repeated. Maximum 9 hours.

475 Studies in Latin American History (3) Variable content. Significant issues in Latin American history. May be repeated. Maximum 9 hours. (Same as Latin American Studies 475.)

476 Studies in Asian History (3) Variable content. Particular aspects of Middle Eastern and East Asian history such as modernization in the Middle East, Revolution in China and Japan, and others. May be repeated. Maximum 9 hours.

479 Studies in United States History (3) Variable content. Particular aspects of United States history. May be repeated. Maximum 9 hours.

480 History of the African Experience such as African resistance movements, African political parties, the relationship of social and economic development under colonialism to social and economic conditions in modern African nations, and Apartheid and resistance in South Africa. May be repeated. Maximum 9 hours.

481 Studies in History (3) Variable content. Subject matter not covered in other courses. May be repeated. Maximum 9 hours.

482 Colloquium in History (3) Historical theme or problems of interest which may involve special reference to historical writing, including critical analysis of primary and secondary sources. Recommended for seniors. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

491 Foreign Study (1-15) Independent Study (1-15)

HOME ECONOMICS EDUCATION

210 Field Experience in Teaching Home Economics Education (1-3) May be repeated. Maximum 3 hours. Satisfactory/No Credit only. F, Sp

220 Introduction to Home Economics Educational Programs (3) School-based and community-based home economics programs. Field experience included. Sp

320 Strategies of Teaching Home Economics (3) Teaching methods, techniques, use of media. Field experience included. Prereq: 320, F

420 Curriculum Development in Vocational Home Economics (3) Program planning, evaluation, design of instruction for classroom. Prereq: 320, Admission to Teacher Education Program. To be scheduled immediately preceding student teaching. Includes laboratory. Sp

421 Teaching Occupational Home Economics (1) Methods, organization, curriculum for Home Economics Related occupational programs. Prereq, or Coreq: 420. Sp

430 Student Teaching in Vocational Home Economics (6-15) Prereq: 420. Satisfactory/No Credit only. F

440 Teaching in Community-Based Programs (3) Planning and implementing non-formal instructional programs; methods, curriculum, delivery systems, evaluation. Includes field experience. Prereq: Senior standing. (Same as CFS 440.) Sp

445 Field Experience in Community-Based Programs (1-15) Placement in Home Economics-related programs or businesses. Includes seminar. May be repeated. Maximum 15 hours. Prereq: Consent of instructor. Satisfactory/No Credit only. F, Sp, Su

497 Honors: Home Economics Education (3-6) Issues or topics of special interest to home economics education, designed to meet particular interests of the student. Prereq: Junior or Senior standing and consent of instructor. May be repeated. Maximum 6 hours. F, Sp, Su

HOTEL AND RESTAURANT ADMINISTRATION

120 Introduction to Hotel and Restaurant Administration (2) History and organization of industry in national economy; basic operating systems, organization structure; problems in the hospitality complex. F

126 Front Office Management (3) Front office procedures within context of overall operation of the hotel/motel; includes reservation systems, equipment, accounting procedures, settlement procedures, public relations, and management. A Sp

220 Foodservice Systems Administration (3) Management concepts, procedures of industry in national systems; decision-making and problem solving principles. F, Sp

320 Quantity Food Procurement, Production and Service (2) Principles for determining needs, procuring, storing, producing and serving foods in volume. Prereq: 220; NFS 100 or 107, 101 or 311; Micro 210 or PH 310; progression into HRA program or consent of the instructor. Coreq: 321 or 322. F, Sp

321 Quantity Food Procurement, Production and Service Laboratory (1) Application of principles in determining needs, procuring, storing, producing and serving foods in volume. Prereq: 220 or PH 310; progression into HRA program or consent of the instructor. Coreq: 320. F, Sp

322 Quantity Food Procurement, Production and Service Laboratory (1) Application of principles in determining needs, procuring, storing, producing and serving foods in volume. Prereq: 220 or PH 310; progression into HRA program or consent of the instructor. Coreq: 320. F, Sp

324 Tourism and Travel Administration (3) Economic and social forces influencing domestic and international tourism; services, functions of retail, wholesale and travel agencies. Prereq: 120; progression into HRA program or consent of the instructor. F

326 Food and Lodging Cost Control (3) Budget, cost accounting, computer-assisted decision making in lodging and foodservice systems. Prereq: 320, 321 or 322; Accounting 202 or consent of instructor. Sp

420 Field Experience in Hotel and Restaurant Administration (6) Supervised educational experiences in selected tourism, food and lodging operations followed by a two-day seminar: Offered only in summer semester. Students enrolled in this course may not enroll in any other courses. Prereq: 320, 321 or 322; Accounting 202; Economics 201; Marketing 301; Business Law 301; 100 hours of verifiable work experience. Satisfactory/No Credit only. Su

422 Food and Lodging Personnel Development (3) Training programs; personnel management procedures and policies involving human resource analysis for hiring and firing, job analysis, salary and wage determination, personnel placement in Home Economics-related programs (1-15) Placement in Home Economics-related programs; methods, curriculum, delivery systems, evaluation and implementing non-formal instructional programs; personnel management policies; professional and sales planning; internal and external sales and promotion techniques. Prereq: Marketing 301; progression into HRA program or consent of the instructor. F, Sp

423 Hospitality Sales and Marketing (3) Strategic marketing for lodging and restaurant organizations; includes property/profit analysis, computer-assisted decision making, analysis of inventory and sales planning, internal and external sales and promotion techniques. Prereq: Marketing 301; progression into HRA program or consent of the instructor. F, Sp

424 Advanced Hotel and Restaurant Administration (3) Integration of functional areas. Management level administrative processes and decision making concerning hotel and restaurant business policy, strategy formulation, implementation, and evaluation. Prereq: 320, 321 or 322; Accounting 202; Economics 201; Marketing 301; Business Law 301; 100 hours of verifiable work experience. F, Sp

425 Hospitality Law (3) Legal rights and responsibilities of staff, management, and guests. Prereq: Senior standing in the HRA program or consent of the instructor. F, Sp

426 Convention Management (3) Scope and segments of convention management including requirements meeting individual needs; methods and techniques for outstanding service. Prereq: 420, Marketing 301, or consent of the instructor. F, Sp

440 Special Topics: Hotel and Restaurant Administration (1-3) Developments, issues and problems in Hotel and Restaurant Administration; topics variable. Prereq: Junior or Senior Standing in Hotel and Restaurant Administration Program or consent of the instructor. May be repeated. Maximum 3 credits. E

449 Directed Study: Hotel and Restaurant Administration (1-3) Individual student: faculty experience. Prereq: Junior and Senior Standing, consent of the instructor. Satisfactory/No Credit only. F

497 Honors: Hotel and Restaurant Administration (1-3) Senior project. Prereq: Senior standing, consent of the instructor. E

HUMAN ECOLOGY

200 Professional Orientation (3) Presentation of ecosystem model and its application to the enhancement of individual and collective well-being; examination of the biosocial nature of human beings; nature of human environments; relationship between people and their environments. F, Sp

210 Microcomputer Applications (3) Introduction to microcomputer use and application in programs operating systems, word processing systems, data base systems, spreadsheet programs and graphics pro-
HUMAN SERVICES

220 Introduction to Human Services (3) Focus on related societal values and contemporary issues in human services; behavior modification, family systems, settings, and roles as students examine the complexities of human needs and social problems.

320 Peoples and Problems of Appalachia (3) Exploration of life style and institutions from contemporary human service point of view. Special emphasis is placed on political and economic structures of region.

330 Thinking About People (3) Development of thoughtful, informed, and empathetic attitudes toward human beings—those providing service as well as those receiving service. Prereq: Progression to the major or consent of instructor. F

380 Human Services Methodologies I (3) Basic helping skills essential to the effective delivery of Human Services. Prereq: Progression to the major or consent of instructor. F

390 Information Interpretation and Assessment (3) Information gathering and assessment for human services are examined in depth in relation to human services practice. Formulating questions, identifying relevant data, using related resources, interpreting information and applying this information in a practical setting. Prereq: Progression to the major. Sp

420 Human Services Methodologies II (3) Includes client-centered and rational emotive therapy. Discussion and role playing of methods and skills that will be used during the practicum experience. Prereq: Progression to the major, 220, 330, Coreq: 440. F

430 Working Within the System (3) Capstone Experience. Content within which the need for human services arises and analysis of the process through which such services are provided. Prereq: Progression to the major, 330; senior standing or consent of instructor. Sp Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

440 Human Services Field Work (6) Practical field experiences in appropriately organized and directed human services settings. Develops specific helping skills; involvement in roles and function of social services, and provides direct services in a supervised learning situation. For majors only. Prereq: Progression to the major or consent of instructor. Coreq: 420. Satisfactory/No Credit only. F

441 Human Services Field Work II (6) Practical field experiences in appropriately organized and directed human services settings. Develops specific helping skills; involvement in roles and functions of social services; and provides direct services in a supervised learning situation. For majors only. Prereq: Progression to the major, 380, 420, 440. Satisfactory/No Credit only. Sp

450 Special Topics in Human Services (3) Issues, methods, values, and trends with implications for helping practitioners, such as art therapy, legal and ethical issues, and self-awareness education. May be repeated. Maximum 9 hours.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

INTERIOR DESIGN

140 Introduction to Interior Design (2) Orientation to the profession; relationship to allied fields; contemporary developments; philosophical approaches. Open only to majors in interior design and architecture. F

150 Visual Studies (3) Classification and properties of two and three-dimensional visual organization; design principles; visual and spatial elements within simple and complex visual systems; role of movement in experiencing scale and volumetric space. Open only to majors in interior design and architecture. F

200 Human-Environment Systems (3) Role of culture in defining environment; physical, social and conceptual aspects of human-environment systems; impact of environment on human behavior, feelings and values; mutu-causal properties of behavior-environment systems. (Same as Urban Studies 200.) F

240 Fundamentals of Interior Design I (4) Principles of spatial organization; creative problem-solving and communication techniques for micro-interior environments; parametric architectural model building, experimentation with various media. Prereq: 140, Arch 172. F

250 Fundamentals of Interior Design II (4) Problem solving, spatial organization of micro environments, increasingly larger scale; communication of total design solution, graphic, audio and photographic techniques. Prereq: 240. Sp

270 History of Interior Architecture I (3) Interior architecture, decoration and decorative arts within cultural context, ancient through seventeenth century. Emphasis on Italy, France and England. Prereq: one semester Art History. Sp

280 Micro-Computers for Interior Design (3) Electronic spreadsheets and data-base organization and management; data-base information to relate anthropology to furniture dimensioning and specifications for maximizing design criteria; model building, experiment with various media. Prereq: 240. Interior Design students only. F

310 Survey of Interior Design (3) Planning and organizing interior spaces (rooms, apartments, residences) to meet personal and family housing needs; relation of furnishings to architectural space. Not open to Interior Design majors. Offered with consent preference given to Home Economics Education and Hotel Restaurant Administration majors. A, Sp

315 Survey of Contract Interiors (3) Planning and organizing interior spaces for restaurants and lodging facilities; relation of furnishings to architectural space. Open only to Hotel Restaurant Administration majors. (Offered Fall and Spring in even years; A, F) Sp

340-350 Intermediate Interior Design I, II (4,4) Studio problems of intermediate complexity; integrates and extends previous knowledge of working drawings, materials and sources, design methods, spatial organization and planning of micro and macro environments, Prereq: Third year in Interior Design; courses must be taken in sequence. F, Sp

360 Business Principles and Practices (3) Interpersonal relationships and business practices, responsibilities, and liabilities. Prereq: Third year in Interior Design. F

370 History of Interior Architecture II (3) Interior architecture, decoration and decorative arts within cultural context, seventeenth through the nineteenth centuries; emphasis on France, England and America. Prereq: 270 or consent of instructor. F

400 Proxemics (3) Analysis of spatial behavior; emphasis on cultural basis of spacing behavior. Prereq: 200 or consent of instructor. A, Sp

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

417 Honors: Interior Design (1-4) Advanced research interior design problems for juniors or seniors. May be repeated. Maximum 8 hours. Prereq: Consent of Interior Design faculty. E

420 Practicum for Interior Design (15) Supervised experience in a professional design firm; business practices and project management. Prereq: Third year in Interior Design, 360 and consent of instructor. Sp

430 Computer-Aided-Design (3) Interaction between computer-aided design process, data-base, spreadsheet software, cost estimating, construction drawings related to space planning. Prereq: 280, 340; Interior Design majors only. Sp

440-450 Advanced Interior Design I, II (4,4) Complex problems utilizing systematic design methodology, commercial and institutional environments, and/or historic preservation/adaptive reuse of older structures with considerations of governmental policies. Prereq: 350 for 440; 440 for 450 and fifth year in Interior Design. F

460 Lighting for Interior Designers (3) Application of elements and principles of lighting and wiring to design of visual environment. Prereq. Third year in Interior Design. Sp

470 History of Contemporary Interior Architecture (3) Interior architecture, decoration and decorative arts within cultural context, colonial through nineteenth century. Prereq: 370 or consent of instructor. Sp

480 Furniture Design (4) Human factors data applied to design of body support, task support, storage and systems, construction drawings and scale models; advanced millwork design; materials and manufacturing processes. Prereq: 200, 350 and fifth year in Interior Design. F

485 Interior Design Synthesis (4-8) Student and instructor initiated advanced research; topics must be approved by supervising Interior Design faculty. Prereq: 450 or consent of instructor. Sp

491 International Study (1-15) Individual or group studio and/or study abroad; academic research, field investigation, or studio experiences. May be substitutable for 450 in student's professional curriculum. Determination of credit based on particular international experience. Prereq: Consent of department head. Sp

493 Directed Study in Studio (1-4) Student or staff initiated study for investigation of special topic(s). Elective credit only. May be repeated. Maximum 8 hours. Prereq: Consent of department head. E

ITALIAN

111-112 Elementary Italian (3,3) Introduction to Italian. May not be taken for credit by students with two years of high school or one year college Italian. Must be taken in sequence. Language Laboratory required.

211-212 Intermediate Italian (3,3) Sequence stresses reading, writing, listening and speaking Italian to prepare for upper division courses in the language. Must be taken in sequence. Language Laboratory required.

311-312 History of Italian Literature (3,3) Chronological view of Italian Literature in relation to the specific historical developments that have influenced it. Prereq: 212 or equivalent.

341-342 Intermediate Grammar, Composition and Conversation (3,3) Grammatical analysis of Italian prose; review of grammatical principles and their application in translation from English to Italian, written and oral; exercises in free composition. Prereq: 212 or equivalent.
401 Dante and Medieval Culture (3) Introduction to the significance of this great Italian writer. Prereq: 212 or consent of instructor. (Same as Medieval Studies 401.)
402 Petrarch and Boccaccio (3) Prereq: 212 or consent of instructor. (Same as Medieval Studies 402.)
403-404 Literature of the Rinascimento (3,3) From Pico to Tasso, the Quattrocento and the Cinquecento. Prereq: 212 or consent of instructor.
405 Modern Italian Poetry (3) Prereq: 212 or consent of instructor.
406 The Modern Italian Novel (3) Prereq: 212 or consent of instructor.
409 Directed Readings (3)
491 Foreign Study (1-15)

JOURNALISM
201 Publicity and Public Relations (3) Principles and practice of writing for mass media. Public information campaigns for organizations and institutions. Not available for majors in the College of Communications. Prereq: English 102. F, Sp
203 Editing (3) Methods and practice in judging news, editing copy, writing headlines and designing newspaper pages and magazines. Emphasis on precise word use and news display. Prereq: Communications 200. E
270 Public Relations Principles (3) Theories and principles of public relations. Overview of public relations in management of business, government, institutions, and organizations. Case studies and basic public relations projects. Prereq: 201 or Communications 200. F, Sp
290 Photodocumentary (3) Principles and practice of photography as a creative tool of communication. Basic camera technique, darkroom work, historical and contemporary photodocumentary. Lecture and laboratory. Prereq: 201, or Communications 200, or consent of instructor. E
310 Feature Writing (3) Skills of journalism for writing feature articles for newspapers, magazines and company publications. Critiquing of students' work in writing workshops, and writing short-in-class pieces as assigned. Prereq: 203, or consent of instructor.
390 Communications Graphics (3) Principles and practice in the visual aspect of communications. Emphasis on graphic design, typography, illustration and photography, printing and production techniques and publication design. Lecture and laboratory. Prereq: 201, or Communications 200, or consent of instructor. E
403 International Communications (3) Development and operations of world mass communications channels and agencies. Comparative analysis of media, media practices, flow of news throughout the world. Print and broadcast systems studies in terms of relevant social, political, economic, and cultural factors. Relation of communication practices to international affairs and understanding. Sp
412 Opinion Writing (3) Analysis of editorial positions, practices, and pages. Writing editorials and columns for newspapers, magazines, and company publications, with emphasis upon study and use of rhetorical devices and logic. Prereq: 203 or consent of instructor.
414 Magazine Article Writing (3) Techniques of writing in-depth articles for mass circulation and specialized magazines. Organizing and presenting material, with attention to problems in areas such as business, science, agriculture, the humanities. Prereq: 203 or consent of instructor.
416 Issues in Journalism (3) Topics vary. May be repeated. Maximum credit 6 hours. Prereq: Consent of instructor.

420 Print Media Management (3) Current business practice among print news media, especially newspapers. Problems in management and production, and the outlook for new technologies. Prereq: 6 hours math and/or accounting, and senior standing. Sp
433 Advanced Editing (3) Primary focus is on sensitivity to language and editing skills. Includes headline writing, layout and production. Prereq: 203. F
460 Mass Communications History (3) Development of the press and the role of mass communications in American history. Newspapers, radio, television and magazines. F
470 Public Relations Campaigns (3) Preparation of communications materials to implement planned public relations programs. Preparation of news releases. Research, planning, communication and evaluation of major public relations projects and campaigns. Prereq: 203, 270, and senior standing. F, Sp
480 Journalism in the High School (3) Functions and methods of high school publications. Staff selection, content of publications, copy, layout, photography, printing, advertising and business. Planning course outlines and curricula for journalism/mass media studies.
490 Advanced Photojournalism (3) Advanced principles and methods of black-and-white photography. Introduction to color photography. News and feature photographs, photo essays. Prereq: 290, or consent of instructor. Sp
492 Field Experience (1-2) Approved internships and other supervised practice in journalism and public relations. May be repeated for a maximum of 4 credit hours. Prereq: Senior standing and consent of instructor. E
493 Independent Study (3) May be repeated for a maximum of 6 hours. Prereq: Consent of instructor.

LATIN
111-112 Beginning Latin (3,3) Must be taken in sequence.
251 Intermediate Latin: Grammar Review and Readings (3) Prereq: 112 or equivalent.
252 Intermediate Latin: Vergil's Aeneid (3) Prereq: 251 or equivalent.
351 Cicero and Sallust (3) Prereq: 252 or equivalent.
352 Roman Lyric Poetry (3) Poetry of Catullus, Horace, and the elegists. Prereq: 252 or equivalent.
414 Cicero and Techniques of Latin Prose Composition (3) For advanced students in Latin. Practice in prose composition, the writings of Cicero the model. Prereq: 351-352 or consent of instructor.
431-432 Selected Readings from Latin Literature (3,3) For advanced students in Latin. Oratory, historical writing, and poetry of ancient Rome, in the original Latin. May be repeated for credit, Maximum 9 hours. Prereq: 351-352 or consent of instructor.
435 Medieval Latin (3) Selected readings from the Latin prose and poetry of medieval Europe. Prereq: Consent of instructor.

LATIN-AMERICAN STUDIES
251-252 Introduction to Latin American Studies (3,3) Societies of Latin America with special emphasis on dominant culture patterns, social changes, and impact of nationalism. 251-Pre-Colonial and Colonial periods through Independence era. 252-Latter 19th century and the Modern period. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.
311 Aspects of Luso Brazilian Literature (3) (Same as Portuguese 311.)
312 Aspects of Spanish American Literature (3) (Same as Spanish 312.)
313 Peoples and Cultures of Mesoamerica (3) (Same as Anthropology 313.)
355 Latin American Government and Politics I (3) (Same as Political Science 355.)
360 History of Latin America (3) (Same as History 360.)
361 History of Latin America (3) (Same as History 361.)
372 Geography of Middle America (3) (Same as Geography 372.)
373 Geography of South America (3) (Same as Geography 373.)

401 Cultural Plurality and Institutional Changes in Latin America (3) Value systems, behavioral patterns, political parties, role of the military, the Church, educational institutions, dictatorship and nationalism. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.
402 Latin American Studies Seminar (3) Selected topics in Latin American studies. May be repeated. Maximum 6 hours.
431 Directed Readings in Brazilian and Portuguese Literature (3) (Same as Portuguese 431.)
432 Directed Readings in Brazilian and Portuguese Literature (3) (Same as Portuguese 432.)
450 20th Century Hispanic Theater (3) (Same as Spanish 450.)
455 Latin American Government and Politics II (3) (Same as Political Science 455.)
471 Latin American Civilization (3) (Same as Spanish 471.)
472 Masterpieces of Spanish American Literature (3) (Same as Spanish 472.)
473-474 Survey of Spanish American Literature (3) (Same as Spanish 473-474.)
475 Studies in Latin American History (3) (Same as History 475.)
479 Social Protest Literature of Latin America (3) (Same as Spanish 479.)

LIBRARY AND INFORMATION SCIENCE
310 Finding Information: Resources and Strategies (3) Information as a critical resource for research and decision making, emphasis on planning and executing information searches and using library resources. E
330 Books and Related Materials for Children (3) Materials for children in leisure time or classroom activities; criteria for selecting books, magazines, recordings, films and related materials; storytelling and other devices for encouraging reading. Undergraduate credit only. E
340 Books and Related Materials for Young People (3) Materials for teenagers in leisure time or classroom activities; criteria for selecting books, magazines, recordings, films and related materials; book talks and other devices for encouraging reading. Undergraduate credit only. Sp
430 History of the Book (3) History of writing and various methods of bookmaking from earliest times through the 19th century. Sp
475 Utilization of Instructional Media (3) Same as Educational Curriculum and Instruction 475. E
LINGUISTICS

200 Language, Linguistics and Society (3) Introduction to linguistics with focus on language development and use of language by individuals and groups. Prereq: Conservation of Freshman English or equivalent.

371 Foundations of the English Language (3) (Same as English 371).

372 The Structure of Modern English (3) (Same as English 372).

400 Topics in Linguistics (3) Content varies. May be repeated. Maximum 6 hours.

411 Linguistic Anthropology (3) (Same as Anthropology 411).

420 The Development of Historical Linguistics as a Science (3) Development of the scientific understanding of language change. Emergence of the Neogrammarian paradigm from 19th century intellectual trends. Impact of synchronic, descriptive, structural and transformational-descriptive linguistics on contemporary diachronic theory. Prereq: 6 hours of courses required for Linguistics concentration or consent of instructor.

425 Introduction to Descriptive Linguistics (3) (Same as French 425, German 425, Russian 425, and Spanish 425).

426 Methods of Historical Linguistics (3) (Same as French 426, German 426, Russian 426, and Spanish 426).

429 Romance Linguistics (3) (Same as French 429 and Spanish 429).


435 Structure of the German Language (3) (Same as German 435).

436 History of the German Language (3) (Same as German 436).

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

472 American English (3) (Same as English 472).

474 Teaching English as a Second or Foreign Language I (3) (Same as English 474).

475 Teaching English as a Second or Foreign Language II (3) (Same as English 475).

485 Special Topics in Language (3) (Same as English 485).

LOGISTICS AND TRANSPORTATION

301 Introduction to Logistics (3) Business logistics as a functional area within the firm, and as a strategic element of the marketing mix. Role of materials management and physical distribution, and activities such as customer service, order processing and information flow, transportation, warehousing, purchasing, inventory, and system design and organization.

302 Transportation Principles and Policies (3) Transportation and distribution as a vital part of the nation's economic and social structure. U.S. transportation system; society's demands for mobility and policies of public and private sectors to meet those demands. Prereq: Economics 201.

400 Special Topics in Transportation and Logistics (3) Seminar in current problem areas in transportation and logistics. Topic announced prior to offering. May be repeated once for credit. Prereq: Consent of instructor.

401 Materials and Traffic Management (3) Planning and management of logistics activities including purchasing, transportation, storage and control, and supply strategies. Materials management tools and organizational structures for various industries. Prereq: 301.

402 Transportation Operations and Cost Management (3) Freight and passenger carrier operations with the development of carrier costs and their control, considered by each mode individually and in coordination with each other. Prereq: 302.


412 Seminar in Logistics Strategy (3) Senior seminar in development of strategy to logistics management. Major writing requirement. Prereq: 401.


493 Independent Study (1-6) Directed research on subject of mutual interest to student and staff member. Prereq: Consent of instructor.

497 Honors: Executive-in-Residence in Transportation and Logistics (3) Student interaction with top-level logistics and transportation executives. Focus on the strategic decision-making process. Prereq: Consent of instructor.

MANAGEMENT

301 Principles of General and Operations Management (3) Basic functions of general management and the concepts and techniques used in operations management. Includes lectures and discussion/problem-solving sessions. Prereq: Statistics 201.

303 Management Information Systems (3) Management information concepts. Organizational information needs, management decisions relating to technology and systems design. Data base management systems and applications development software.

311 Labor Relations and Collective Bargaining (3) American labor history, structure and philosophy of contemporary unions, nature of collective bargaining, and dispute settlement. (Same as Economics 343.)

321 Organizational Structure and Behavior (3) Behavioral processes in organizations; motivation, leadership, decision making, communication; behavioral consequences; group behavior, informal organizations, organization structure, conflict, politics, change and development.


401 Business Strategy/Policy (3) Strategy and policy which affect the character and success of the total enterprise. Capstone course which integrates all functional areas in the formulation and implementation of strategy which will enable the organization to reach objectives. Major writing requirement. Prereq: Completion of business core courses and senior standing. Must be admitted to a business major.


431 Personnel Management (3) Theory, methods and issues pertaining to successful personnel management. Prereq: 303.

432 Implementation and Evaluation of Personnel Programs (3) Methods of identifying, developing, implementing and evaluating various personnel programs. Prereq: 431, senior standing.

440 Organizational Psychology (3) (Same as Psychology 440)

441 Operations Management II (3) Planning and control of operations systems. Aggregate planning; scheduling systems, materials management. Prereq: 341.

461 Database Management in Business (3) Application, logical structure, and implementation of database systems. Management of data resources to effectively support information systems in organizations. Prereq: Computer Science 261.

471 International Management (3) Factors significant to the manager in international business activities.

481 Management Science (3) Quantitative methods for production and operations management. Linear, dynamic and network programming, and decision making. Prereq: Statistics 251, 252.

593 Independent Study (3) Readings, research, and special projects. Prereq: Consent of instructor. May be repeated one time for credit.

MANAGEMENT SCIENCE

310 Management Science and Managerial Decision Support Systems (3) Introduction to quantitative decision models and their integration into microcomputer-based decision support systems. Topics include linear, dynamic and network programming, as well as decision analysis. Prereq: Markov, inventory and queuing models. Prereq: Mathematics 121, 122 and Statistics 201.

MARKETING

301 Marketing Management (3) Institutions comprising the marketing system; principal environmental opportunities and constraints facing the marketing manager. Prereq: Economics 201.

510 Buyer Behavior - Analysis for Marketing (3) Comprehensive framework of consumer behavior concepts and processes. Application to market analysis, design and control of marketing programs. Prereq: 301.

320 Marketing Research and Information Planning (3) Marketing research process from its inception to implementation of the study's results. Student should be able to critically evaluate the merit of a research project, as well as possess the ability to design a sound marketing project. Major writing requirement. Prereq: 301 and Statistics 201.

420 Promotional Management (3) Principles and practices of promotion management and their relationship to overall marketing program. Managerial focus emphasizing types of decisions creatively confronting promotion executives. Prereq: 301.


543 Independent Study (1-6) Directed research on subjects of mutual interest to student and staff member. Prereq: Consent of instructor.

497-498 Honors I & II (3,3) Topics may include non-business marketing applications, macroenvironmental issues, market segmentation, international marketing, services marketing, issues of marketing, and related issues. Prereq: Consent of instructor.

MATHEMATICS

110 Algebraic Reasoning (3) A course in the applications of elementary mathematics to the modern world. Includes applications in financial mathematics, consumer mathematics, and other areas. Students preparing to take 121 should take 110 instead of 110. Prereq: Two years of algebra and one year of geometry. This course should not be taken to remove an entrance requirement.
115 Statistical Reasoning (3) An introduction to proba-
bility and statistics without calculus. Not available for
students of the College of Business Admin-
istration. Prereq: Two years of algebra and one year
of geometry in high school, plus satisfactory place-
test scores or C or better in C115.

119 Precalculus A (3) A review of algebraic functions,
equations, and inequalities for students who satisfy
the course prerequisites for 121 but whose place-
test test scores indicate additional preparation is
necessary. Students who receive a grade of C or
better in any course numbered 121 or higher may not
subsequently receive credit for 119. Prereq: Two years
of algebra and a year of geometry. This course
should not be taken to remove an entrance require-
ment.

121 Calculus A (3) For students not planning to major
in science, engineering, mathematics, or computer
science. Calculus of algebraic, exponential, and loga-
ithmic functions, with applications. No student who
has received credit for Math 141 or 151 with a grade
of C or better may subsequently receive credit for
121. Prereq: Two years of algebra and one year of
geometry in high school, plus satisfactory placement
test scores, or C or better in C121.

122 Calculus B (3) Sequel to 121, including elementa-
ry matrix algebra, multivariable calculus, and optimization.
No student who has received credit for 241 or 251
may subsequently receive credit for 122. Prereq: 121,
or 141, or 151.

130 Precalculus I (4) Review of algebraic, logarith-
omic, exponential, and trigonometric functions for students
who satisfy the course prerequisites for 141 or 151, but
who do not meet the placement test requirement. This
course may be selected in addition to Precalculus A.
Students who have earned a grade of C or better in 141 or 151
may not subsequently receive credit for 130. Prereq: Two years
of algebra, a year of geometry, and half a year of trigo-
nometry in high school. Students who did not study trigonometry
in high school may take the noncredit course in trigonometry simultaneously with 130.

141-142 Calculus I, II (4,4) Standard first-year course in
single variable calculus, especially for students of science,
engineering, mathematics, and computer science. Differen-
tial and integral calculus with applications. Credit will not be given for 130 and 151. Prereq:
Two years of algebra, a year of geometry, and half a year of
trigonometry in high school, plus satisfactory placement test scores, or 130.

143-144 Microcomputer Laboratory (1,1) Optional sup-
plement to the calculus courses, featuring computer
applications and projects. Coreq: Students registrat-
ing for one of these lab courses must also be
registered for the corresponding calculus course.

147-148 Honors: Calculus I, II, (4, 4) Honors version of
141-142 for well-prepared students. Qualified stu-
dents are placed on an individual basis. This course
is intended for students having excellent high school math-
ematics backgrounds who are interested in writing
outside the classroom.

151-152 Biocalculus I, II (3,3) For students majoring
in the life sciences. Topics from calculus of exponen-
tial, logarithmic, and trigonometric functions, probability and sta-
istics, with emphasis on applications to the life sciences.
Credit will not be given for both 141 and 151. Prereq:
Two years of algebra, a year of geometry, and half a year of
trigonometry in high school, plus satisfactory placement test scores, or 130.

200 Matrix Computations (1) Introduction to matrix
calculations, eigenvalues, eigenvectors, and associated
eigenvectors. For students in the College of Engi-
neering and College of Business Statistics majors only.
Students who have received a grade of C or
better in 251 may not subsequently receive credit for
200. Prereq: 141-142.

221-222 Discrete Mathematics I, II (3,3) Logic, sets,
combinatorics and probability, functions and rela-
tions. Coreq: Students registering for 221 must also
register for 141.

231 Differential Equations I (3) First course, empha-
sizing solution techniques. Includes first-order equations and
applications, special first-order equations, linear equations
with constant coefficients, Laplace transforms, and series solutions. Prereq: 141-142.

241 Calculus III (4) Functions of two or more dimen-
sions; sequences and series; partial differentiation, multiple integration, and selected topics in
vector calculus. Prereq: 141-142.

243 Microcomputer Laboratory (1) Optional supple-
ment to 241, featuring computer demonstrations and
projects. Coreq: Students registering for 243 must also
be registered for 241.

247 Honors: Calculus III (3) Prereq: 147-148 or invita-
tion of the department.

251 Matrix Algebra I (3) First course in the algebra
of simultaneous linear equations and matrices. Includes
Gaussian elimination, determinants, vector spaces,
linear transformations, eigenvalues, and eigenvec-
tors. Prereq: 141-142.

253 Microcomputer Laboratory (1) Optional supplement
to 251, featuring computer demonstrations and projects.
Coreq: Students registering for 253 must also be reg-
istered for 251.

257 Honors: Matrix Algebra I (3) Prereq: 147-148 or invita-
tion of the department.

233 Probability I (3) Elementary combinatorics; dis-
crete probability spaces, conditional probability and
stochastic independence; discrete and continuous random
variables (including binomial, Poisson, uniform and normal); joint distributions, expectations and
characteristic functions, the weak and strong laws of
large numbers and the central limit problem. Prereq:
241.

341 Analysis I (3) Introduction to the theory of the
real number system, limits of sequences, and func-
tions of a real variable. Prereq: 233.

351 Algebra I (3) Introduction to abstract algebra,
emphasizing integers and polynomial rings. Prereq:
221 and 251.

371 Numerical Algorithms I (3) Selection of algo-
rithms and associated library software for problems
selected from roots of equations, systems of linear
equations, least squares data fitting, interpolation, numer-
cal integration, numerical methods for ordinary
differential equations. Prereq: 231, 241, 251, and knowl-
edge of a high level programming language, such as
FORTRAN. (Same as Computer Science 371)

399 Studies in Mathematics (3) May be repeated.
Maximum 9 hours. Prereq: Consent of instructor.

400 History of Mathematics (3) Development of math-
ematics from ancient to modern times. Does not satisfy
major requirements for a B.S. or M.S. in mathemat-
ics. Term paper required. Prereq: 141-142 or equivalent.

401 Mathematics and Microcomputers (3) Primarily
for students seeking certification in mathematics teach-
ers at the secondary level. The use of microcomputers
to study concepts and problems in mathematics. Does not satisfy major requirements for a B.S. or M.S. in
mathematics. Prereq: 141; 221 or 504.

404 Applied Vector Calculus (3) Topics from multivar-
able and vector calculus including line and surface
integrals, the divergence theorem and the theorems of

405 Models in Biology (3) Difference and differential
equation models of biological systems. Prereq: 141-
or 151-152.

411 Mathematical Modeling (3) Construction and anal-
ysis of mathematical models used in science and
industry. Includes solid analytic models, computer
algorithms, and applied mathematics. Prereq: 231, 241,
and 251. Writing-emphasis course: at least one in-class
essay examination and 3000 words of writing outside the
classroom.

421 Combinatorics (3) Introduction to problems of
construction and enumeration for discrete structures
such as sequences, partitions, graphs, finite fields
and geometries, and experimental designs. Prereq: 323
or consent of instructor.

423 Probability II (3) Law of large numbers and cen-
tral limit theorems for discrete and continuous random
variables; Poisson processes; discrete and continu-
uous parameter Markov chains and their applications,
Kolmogorov differential equations; Brownian motion
process as a limit of random walks. Prereq: 323.
MEDICAL BIOLOGY

410 Laboratory Safety Education (2) Preparation for teachers of laboratory safety. Hazards of flammables, corrosive chemicals, isotopes, pathogens, poisons, medical waste disposal. Emphasis on techniques of safe operation and handling will be presented.

411 Undergraduate Research Participation (1-3) Experience in active biomedical research projects under supervision of faculty. Students in pre-medicine and other biology majors may conduct their own research projects within designated areas. Prereq: Junior or senior standing. May be repeated with consent. Maximum 9 hours. Satisfactory/No Credit only.

MEDICAL TECHNOLOGY

410-411 Microbiology (4-4) Laboratory work in bacteriology, mycology, and parasitology. Emphasis on pathogenic bacteria and fungi, their sources, methods of culture, techniques of identification, and evaluation of antibiotic sensitivity. Gross and qualitative chemical examination of feces and methods of identification of protozoa and helminth parasites of man.

420-421 Clinical Chemistry (5,5) Clinical aspects of biochemistry, including overview of principles and instrumentation with emphasis on practical laboratory application of analytical procedures, specimen collection and handling, significance of results, and quality assurance. Includes blood gas analysis, including radioimmunoassay, and analysis of blood and other body fluids for enzymes, hormones, and other constituents of clinical interest; utilizing both automated and manual techniques, physical characteristics, detection, and use of short half-life radioactive materials for in vivo procedures such as radioimmunoassay which utilize radiolabels.

430-431 Hematology and Clinical Microscopy (4,4) Principles, theories, and instrumentation related to 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 on microscopic identification of cells and the significance and correlation of laboratory data.


450 Clinical Serology and Immunology (1) Performance and interpretation of broad range of clinical serological and immunological procedures with emphasis on principles and clinical correlation. Formal lecture series included.

460 Nuclear Medicine (1) Physical characteristics, detection and use of short half-life radioactive materials in diagnostic and medical uses. Performance and theory of in vivo procedures such as radioimmunoassay which utilize radiolabels.

470 Orientation and Basic Techniques (1) For facilitation of students from campus to hospital community and clinical laboratory. Introduction to medical terminology, ethics, and health team concept. Orientation to basic techniques including 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.

480 Principles of Supervision and Education in Medicine (1) Seminars in basic principles of management, supervision, and education theories and methods. Comprehensive examination covers entire course.

MEDIEVAL STUDIES

201 Medieval Civilization (3) 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.

261 Medieval Culture: Readings from the Early Middle Ages, 500-1000 (3) Critical analysis and interpretation of selected works from the early medieval period. Focuses on major types of literature produced during the period 600-1000 A.D., e.g., cultural, religious, rhetorical, lyric, epic, biographical. Includes Augustine's Confessions, Boethius' Consolation, St. Gregory's Life of St. Benedict, The Life of Charlemagne, etc. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

262 Medieval Culture: Readings from the Later Middle Ages, 1000-1500 (3) Critical analysis and interpretation of selected works from the later medieval period. Focuses on romantic, allegorical and mystical writings from the high and later Middle Ages, e.g., the Song of the Nibelungen, the Romance of the Rose, St. Bernard's Commentary on the Song of Songs, Peter Abelard's History of My Calamities. Should be taken in sequence with 261. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

312-313 Medieval History (3,3) (Same as History 312-313.)

322 Medieval Philosophy (3) (Same as Philosophy 322.)

371 Early Christian and Byzantine Art, to 1350 (3) (Same as Art 371.)

372 Northern European Painting, 1350-1600 (3) (Same as Art 372.)

381 Medieval Art of the West, 800-1400 (3) (Same as Art 381.)

382 The Art of Italy, 1250-1450 (3) (Same as Art 382.)

401 Dante and Medieval Culture (3) (Same as Italian 401.)

402 Petrarch and Boccaccio (3) (Same as Italian 402.)

403 Seminar in Medieval Studies (3) Interdisciplinary treatment of selected topics. Content varies. May be repeated. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

410 Medieval Latin Literature (3) (Same as French 410.)

415 Medieval Literature (3) (Same as Architecture 415.)

475 Ancient and Medieval Political Thought (3) (Same as Political Science 475.)

MICROBIOLOGY

200 Microbiology for Student Nurses (3) Only for student nurses in diploma program of hospitals affiliated with The University of Tennessee. Microbiological principles as they apply to nursing care of the patient. Epidemiology of infection, and principles of immunity and allergy.

210 General Microbiology (3) General properties of bacteria and viruses including physiology, metabolism, genetics, applied bacteriology, pathogenesis, and immunity. May not be used as part of the major in microbiology. 2 hours and 2 labs. E

310 Introduction to Microbiology (3) Introduction to bacteria and viruses including physiology, metabolism, and genetics of bacteria and replication and expression of viruses; bacterial and viral pathogenesis; mechanisms of resistance to disease. Coreq: 319. F, Sp

319 Introductory Microbiology Laboratory (1) Basic techniques for the examination, cultivation, and identification of microorganisms. Coreq: 310, F, Sp

400 Laboratory Problems in Microbiology (4) Research projects under the direction of a faculty member. May not be used for credit toward the major without consent of instructor. May be repeated. Maximum 9 hours. Satisfactory/No Credit only. Prereq: Consent of instructor. E

410 Physiology and Genetics of Bacteria (3) Modern concepts of the structure and function of the bacterial cell, including metabolism, energy flow, and the transmission and expression of genetic information. Prereq: 310.

419 Bacterial Physiology and Genetics Laboratory (1) Laboratory exercises designed to accompany 410. Coreq: 410.

420 Pathogenic Bacteriology (2) Disease producing microorganisms including bacteria, rickettsia, and chlamydia. Prereq: 310.


430 Immunology (2) Principles of inflammation and immunity; immunoglobulin structure and theories of formation and diversity; complement, hypersensitivities, cell cooperation and recognitions in immune mechanisms; soluble factors. Prereq: Biology 220. (Same as Zoology 430.)

439 Immunology Laboratory (1) Laboratory exercises designed to accompany 430. Coreq: 430. (Same as Zoology 439.)


480 Mycology (3) Morphology, physiology, genetics, and taxonomy of yeasts and molds; pathogenesis of disease causing fungi. Prereq: 310.

489 Mycology Laboratory (1) Laboratory exercises designed to accompany 489. Coreq: 489.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

495 Senior Seminar (3) In depth consideration of microbiological problems of current interest requiring an integration of two or more disciplines. Emphasis on original literature and the experimental basis of current knowledge. Historical background, impact on society, predictions of the future, and the basis of moral and ethical judgments. Written reports required. A capstone course. Prereq: Senior standing. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

MILITARY SCIENCE

110 Basic Military Science (3) Formation and functioning of the American defense establishment, customs and traditions of the army, application of the principles of war, and current military threat faced by the United States. Introduction to leadership, personal leadership, and mountaineering. Prereq: United States citizen; freshman or sophomore standing. Students with higher standing require consent of instructor. Letter grade only. F, Sp

120 Leadership Development Techniques (2) Introduction to basic leadership theory, human motivation theory, and principles of efficient and effective communications. Application of theories and principles in individual and group exercises. Prereq: 110 or consent of the Professor of Military Science. Letter grade only. F, Sp

200 Basic Military Studies - Practicum (4) 240 contact hours of instruction and evaluation at Fort Knox, Kentucky over a six week period during the summer.
Prereq: United States citizen; physically qualified; at least two years standing with two years remaining at the University (either undergraduate, graduate or in pursuit of additional course work; cumulative GPA 2.00 or above; legally qualified. Letter grade only. Su 430 U.S. Military History, 1754 to the Present (3) 3 hours and 1 hour lab. Sp Prereq: 310 or consent of the Professor of Military Communications, land navigation, and first aid. Prereq: 210 or consent of the Professor of Military Science. Letter grade only. F, Sp, Su 320 Conducting II (3) Developing advanced baton technique. Multiple rhythms, modern beat patterns and their variations. Sight reading, analyzing and interpretation of the full score. Achieving complete physical control. Rehearsal techniques. Conducting "live" groups. Video tapes of all student conductors. Prereq: Conducting I or consent of instructor and admission to Teacher Education Program. Letter grade only. F 330 Music Methods for the Elementary School (3) Methods and materials for teaching music in the elementary grades. Primarily intended for music education majors. Prereq: Consent of instructor and admission to Teacher Education Program. Letter grade only. Sp 350 Field Experience in Music Education (1) Prereq: Consent of instructor and admission to Teacher Education Program. May be repeated. Maximum 3 hours. Satisfactory/No Credit only. E 410 Pre-Internship Seminar (1) Objectives and policies of the internship program. Must be completed the term immediately preceding the internship. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only. Sp, Su 420 Music Methods for the Junior High School and Middle School (3) Methods and materials for teaching vocal, instrumental, and general music at the junior high school or middle school level. Prereq: Admission to Teacher Education Program and consent of instructor. Letter grade only. Sp 430 Music Methods for High School (3) Methods and materials for vocal and instrumental music at the high school level, including charting for the marching band. Prereq: Admission to Teacher Education Program and consent of instructor. Letter grade only. F 450 Eurhythmics (3) Principles and practice of eurhythmics, as developed by Emile Jaques-Dalcroze. Prereq: Consent of instructor. Letter grade only. F 481 Internship I: Grades K-12 (2-3) Methods and the- ones of teaching. Internship is completed in local public schools. Application for internship should be made upon admission to the Teacher Education Program. Prereq: 410 and admission to Teacher Education Program. Satisfactory/No Credit only. F 482 Internship II: Grades K-12 (2-3) Demonstration of professional competence in planning, instruction and classroom management. Internship is completed in local public schools. Prereq: 481 and admission to Teacher Education Program. Satisfactory/No Credit only. Sp 493 Special Topics in Music Education (3) Prereq: Consent of instructor. May be repeated. Minimum 9 hours. Letter grade only. E 493 Independent Study in Music Education (2-5) Prereq: Consent of instructor. May be repeated. Maximum 9 hours. Letter grade only. E 495 Advanced Music Methods for Elementary Teach- ers (3) Continuation and amplification of the concepts and skills covered in Music Education 300, intended for Elementary Education majors. Prereq: 300 or con- sent of instructor. Letter grade only. Sp 330 Fundamentals of Music (3) Theory and practice of music. Letter grade only. F, Sp, Su 331 Advance Military Studies I (4) Applied leader- ship including operation of the military team, electronic communications, land navigation, small unit leader- ship, internal defense development, field trip, and leadership laboratory. Philosophy of organization and organization of military in tactical and administrative roles. Prereq: United States citizen; minimum of 30 credit hours passed and have at least two years remain- ing to complete degree (undergraduate or graduate); physically qualified; cumulative GPA 2.00 or higher; legally qualified; under thirty years age at time of com- missioning; 3 or 4 years of branch of AFT or 110, 120, 210, 220 completion of Branch completion course structure of 310, 320, 200, 410, 420, 400. Letter grade only. 3 hours and 1 hour lab. F 320 Advance Military Studies II (4) Applied leader- ship including operation of the military team, electronic communications, land navigation, small unit leader- ship, internal defense development, field trips, and leadership laboratory. Philosophy of organization and organization of military in tactical and administrative roles. Prereq: 310 or consent of instructor. Letter grade only. 3 hours and 1 hour lab. F 400 Advance Camp-PRACTICUM (4) 249 contact hours of instruction and evaluation at Ft. Lewis, Washington during the summer between the Junior and Senior year. Prereq: 310, 320. Letter grade only. Su 410 Command and Staff Functions (4) Command and staff duties and relationships including logistics, personal- ity systems, efficiency reports, correspondence, training management, briefings, counselling, strategic force positioning, and non-commissioned officer relationships. Prereq: 310 and 320, 400 or consent of instructor. Letter grade only. 3 hours and 1 hour lab. F 420 Military Ethics and Law (4) Military profession, ethical reasoning, staff operations, military briefings and reports, regulations, legal system, individual values, and Warfare. Prereq: 310, 320 and 400, 410 or consent of instructor. Letter grade only. 9 hours and 1 hour lab. Sp 430 U.S. Military History, 1754 to the Present (3) (Same as History 451.)
401 Senior Recital (0)
411 Lecture Recital (0)
421 Special Topics in Performance (1-3) Prereq: Consent of department head. May be repeated. Maximum 4 hours.
431 Special Topics in Pedagogy (1-3) Prereq: Consent of department head. May be repeated. Maximum 4 hours.

MUSIC HISTORY
200 Introduction to Music Literature (3) Basic forms of music and accepted masterworks through chronological approach. For music majors and minors only.
210-220 History of Music I, II (3,3) 210-220 to 1750. 220-1750 to present. Prereq: 200. Must be taken in sequence.
310 Introduction to Afro-American Music (3) History of African music, blues, gospel music, and jazz with emphasis on Black artists and their contributions. (Same as Afro-American Studies 310.)
330 Women in Music (3) History of women in music from the Middle Ages to present as composers, performers, educators, and patrons. (Same as Women’s Studies 330.)
350 History of Jazz (3) Origin, development, and styles of jazz music and its exponents. Cultivation of special listening techniques. (Same as Afro-American Studies 350.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.
390 World Music (3) Basic attitudes and techniques of ethnomusicology. Survey of music cultures throughout the world, with emphasis on the Pacific, Near East, Asia, and Europe.
400 Music History Survey (3) History of music with emphasis on genres, style changes, and cultural forces. Western Europe from 400 to 1900. Recommended as a review course for graduate students. Prereq: Consent of instructor.
410 Music History Genre (3) Topics vary. May be repeated for credit. Maximum 6 hours.
420 History of Opera (3) Dramatic, vocal, and orchestral elements in opera of Italian, French, and German schools. 1600-present.
430 Symphonic Literature (3) Survey of literature for orchestra from Baroque to the present, with emphasis on the evolution of the symphony.
440 Music of North America (3) Folk and art music of the United States and Canada from colonial times to the present. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.
450 Composer Seminar (3) Life and works of a single composer. Subjects vary.
460 Music Aesthetics (3) Nature of music and musical experience, sense perception and emotions, music, and role of artist in society. Aesthetic viewpoint of individuals and historical eras through selected writings. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.
480 Music in Christian Worship (3) Music traditions in Christian worship, including hymnody.
490 Church Music Methods and Administration (3)
493 Independent Study (1-15) Prereq: Consent of department head. May be repeated for credit.

MUSIC INSTRUMENT
310 Brass Literature (3) Prereq: Consent of instructor.
320 Woodwind Literature (3) Prereq: Consent of instructor.
330 Percussion Literature (1) Prereq: Consent of instructor.
340-350 String Literature I, II (2,2) 340-Survey of string techniques, issues, research and pedagogies; topical presentations by the applied string faculty and guest. 350-Development of the violin family of instruments and bowing techniques, string literature, performances, and performance styles; application of historical, analytical, and pedagogical procedures to performance. Prereq: 340 and applied enrollment in strings at 300 level or above or consent of instructor.
410 Band Arranging (3) Study and application of techniques employed in scoring for the marching and concert bands. Prereq: Music Theory 320.
490 Instrumental Conducting (3) Knowledge and skills in instrumental conducting; various periods and composers and relationship of different styles to the conductor’s art; musical analysis and practice in conducting. Prereq: Music Education 320 or equivalent.
495 Suzuki Violin Method (3) Psychology, procedures, and literature of the Suzuki violin method and pedagogy. May be repeated. Maximum 8 hours. Prereq: Consent of instructor.

MUSIC JAZZ
110 Jazz Theory (3) Fundamentals of the jazz language, including terminology, chord symbols, chord/scale, and chord progressions, plus ear-training lab. Prereq: Music Theory 110.
120 Analysis of Jazz Styles (2) Individual improvisatory styles through analysis of their transcribed solos. Training and function of the ear in music. Transcription of solos from recordings and preparation of analysis. Prereq: 110.
130-140 Jazz Piano I, II (1,1) Harmonic language of jazz. Interpretation of chord symbols, formulae for voicing chords, chord progressions, and fundamental melody-playing and improvisation for right hand. Must be taken in sequence.
150 Studio Guitar Styles (2) Introduction to guitar styles in jazz, rock, country, and blues idioms. Prereq: Consent of instructor.
160 Introduction to Styles in Jazz Drumming (2) Examination of major composers and performers who have contributed significantly to the creation of principal styles of jazz drumming.
210-220 Jazz Improvisation I, II (2,2) Study and application of principles of improvisation, including nomenclature, chord progressions, chord-scales, patterns, melodic development, and tune styles. Prereq: 110.
310 Jazz Composition and Arranging (3) Prereq: Consent of instructor.
320 Jazz Band Arranging (2) Arranging and scoring for the Big Jazz Band. Prereq: Consent of instructor.
410 Advanced Improvisation (3) Development of individual skills and solving individual problems in jazz improvisation. Prereq: 210-220.
420 Jazz Pedagogy (1) Methods and materials related to the development of principles of improvisation for college and/or adult beginning piano classes, with collaborative teaching experience. Prereq: Consent of instructor.
495 Suzuki Piano Method (3) Study of the psychology, procedures, and literature of the Suzuki Piano Method. Prereq: Consent of instructor.

MUSIC PERFORMANCE
103-203-303-403-503 Flute (1-4) May be repeated.
105-205-305-405-505 Oboe (1-4) May be repeated.
110-210-310-410-510 Bassoon (1-4) May be repeated.
115-215-315-415-515 Clarinet (1-4) May be repeated.
120-220-320-420-520 Saxophone (1-4) May be repeated.
125-225-325-425-525 Horn (1-4) May be repeated.
130-230-330-430-530 Trumpet (1-4) May be repeated.
135-235-335-435-535 Trombone (1-4) May be repeated.
140-240-340-440-540 Baritone (1-4) May be repeated.
145-245-345-445-545 Tuba (1-4) May be repeated.
150-250-350-450-550 Percussion (1-4) May be repeated.
155-255-355-455-555 Voice (1-4) May be repeated.
160-260-360-460-560 Violin (1-4) May be repeated.
165-265-365-465-565 Viola (1-4) May be repeated.
170-270-370-470-570 Cello (1-4) May be repeated.
175-275-375-475-575 String Bass (1-4) May be repeated.
176-276-376-476-576 Electric Bass (1-4) May be repeated.
179-279-379-479-579 Guitar (1-4) May be repeated.
180-280-380-480-580 Piano (1-4) May be repeated.
190-290-390-490-590 Organ (1-4) May be repeated.
294-394-494-594-694 Composition (1-3) May be repeated. Prereq: Consent of instructor.
240 Church Service Playing I (1) Practical skills applicable to the use of the organ in church services, including improvisation, hymn playing, and accompanying. Prereq: 230 and organ proficiency at the 200 level.
310-320 Church Service Playing II, III (1,1) Continuation of 240. Prereq: 240.
330 Sight Reading at the Keyboard (1) Prereq: Consent of instructor.
410 Early Keyboard Literature (2) Keyboard music through the baroque period, with primary emphasis on music for the harpsichord. Prereq: Music History 210-220.
420-430 Piano Literature I, II (2,2) 420-From 1750 to middle 19th century. 430-Middle 19th century to the present.
440-450 Piano Pedagogy I, II (2,2) Pedagogical methods and materials related to the development of principles of learning; specific programs based on pupil aptitude and background; collaborative teaching experience. Must be taken in sequence. Prereq: Consent of instructor.
460-470 The Organ and Its Literature I, II (3,3) 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 or Coreq: Music History 220 and consent of instructor.
480-490 Teaching Class Piano I, II (1,1) Historical survey and evaluation of teaching materials and methodology for college and/or adult beginning piano classes, with collaborative teaching experience. Prereq: Consent of instructor.
495 Suzuki Piano Method (3) Study of the psychology, procedures, and literature of the Suzuki Piano Method. Prereq: Consent of instructor.
389-445-595 Composition with Electronic Media (1-3) May be repeated. Prereq: Consent of instructor.
498 Composition for Media (2) May be repeated. Prereq: Consent of instructor.
499 Improvisation (1-2) May be repeated. Prereq: Consent of instructor. Cannot be used to satisfy applied music requirement.

MUSIC THEORY

110-120 Theory I, II (3,3) Materials of music including basic elements through triads and seventh chords and modulation. Exercises in writing and analysis of music with emphasis on common practice.

130-140 Ear Training I, II (1,1) Development of proficiency in identifying and notating melodic, harmonic and rhythmic models. Includes computer lab. Must be taken in sequence. Prereq: concurrently with 110-120. A,B,C grading.

210-220 Theory III, IV (3,3) Materials of music with emphasis on literature of Classic, Romantic, and contemporary periods. Exercises in writing and analysis. Must be taken in sequence. Prereq: 120 or consent of instructor.


250 Composition (2) Writing short vocal and instrumental compositions. Prereq: 220 or consent of instructor. May be repeated for credit. Maximum 4 hours.

290 Sound Recording Techniques (3) Theory and applications of tape recording's sound reproduction and reinforcement systems. Topics include room acoustics, audio measurements, microphones, studio and real-time processing, noise reduction, mixing, editing, monitors, system wiring, and maintenance.

310 Form and Analysis (3) Study and practice in analysis of forms of music from smallest structural units to large compound forms. Prereq: 220.

320 Instrumentation (3) Basic techniques in scoring for voices, brass, woodwind, and string choirs; and percussion. Prereq: 220.

390 Sound Synthesis Techniques (3) Studio and real-time applications of synthesizers. Historical background, theoretical concepts, equipment interface and usage, analysis of sounds and compositions. Prereq: 290 or consent of instructor.

400 Survey of Music Theory (3) Emphasis on harmonic practice of Baroque, Classic, and Romantic periods. Exercises in writing and analysis. Recommended as a review course for graduate students. Prereq: Consent of instructor.

420 Orchestration (3) Advanced techniques in instrumental writing with emphasis on scoring for the concert orchestra. Prereq: 320.

430-440 Counterpoint I, II (3,3) Counterpoint in modal and tonal styles with emphasis on works of Palestrina and J.S. Bach. Prereq: 220. 440-Writing of contrapuntal forms of the 18th century and fugue analysis of works from the 18th through the 20th centuries. Prereq: 430.

493 Independent Study in Music Theory (1-15) May be repeated for credit. Prereq: Consent of department head.

MUSIC VOICE

110 Class Voice I (1) Development of basic vocal skills. May be repeated for credit. Maximum 2 hours.

120 Class Voice II (1) Prereq: Consent of instructor. May be repeated for credit. Maximum 2 hours.

210 Vocal Techniques in Popular Music (1) Development and performance techniques in Broadway and other contemporary music styles. Prereq: Consent of instructor. May be repeated for credit. Maximum 4 hours.

220 Introduction to Music Theatre Technology (2) Stage technology unique to lyric stage.


240-250 Diction I, II (2,2) Sounds by phonetic symbols. Opera and art songs used for examples. Performance practice.

330 Opera Production (1-3) Supervised work on opera productions. Interdisciplinary approach to the course and the interaction of voice and music. Prereq: Consent of instructor. Maximum 12 hours.

410-420 Song Literature I, II (2,2) 410-German songs. 420-French, Italian, Russian, Scandinavian, Czechoslovakian, British, and American art songs.

430 Styles in Opera Acting (2) Study and practice of styles in opera acting based on historical and national characteristics. Prereq: 230.

440 Projects in Opera Theatre (1-3) May be repeated for credit. Prereq: Consent of instructor. Maximum 9 hours.

450-460 Pedagogy I, II (1,1) 450-Concepts and approaches to teaching singing (past and present). 460-Vocal teaching materials; includes collateral teaching experiences. Prereq: Consent of instructor.

NURSING

214 Integrated Biomedical and Health Sciences (1-3) Examination and application of selected theories from physics, chemistry, human gross anatomy and physiology, and principles utilized to deliver and manage care to families experiencing normal pregnancy and child birth and to those experiencing such health problems or complications as congenital anomalies, high risk birth, disturbed parent/child relationships, or gynecological disturbances. 3 lectures, 3 lab. Prereq: All 300 level nursing courses.

215 Nursing Process (2) Introduction to Nursing (1) History, philosophy, and scope of nursing practice with emphasis on nursing process; cognitive and psychomotor skills necessary for effective nurse/client interactions. Clinical laboratory experiences emphasize the nursing process and its application to the care of individuals whose health problems require in-patient services. Laboratory sessions for development of nursing assessment skills. 3 lectures, 1 lab. Coreq: 301 and 304.

216 Community Health Nursing (4) Application of the nursing process to care of individuals, families, and groups in home and community settings with special emphasis on health promotion, disease prevention, and control of communicable diseases. Epidemiological approach is utilized to study the distribution of diseases in the population that are related to environmental, occupational, and other health-related factors. 5 lectures, 3 lab. Prereq: All 300 level nursing courses.

220 Introduction to Nursing (1) History, philosophy, and scope of nursing practice with emphasis on nursing process; cognitive and psychomotor skills necessary for effective nurse/client interactions. Clinical laboratory experiences emphasize the nursing process and its application to the care of individuals whose health problems require in-patient services. Laboratory sessions for development of nursing assessment skills. 3 lectures, 1 lab. Coreq: 301 and 304.

230 Transition to Professional Nursing (6) Current status of professional nursing; utilization of the nursing process in a changing health care delivery system; and the role of the nurse in the changing society. 5 lectures, 1 lab. Prereq: Consent of instructor. F

311 Acute Care Nursing (10) Continuation of 302 with emphasis on physiological and behavioral deviations which underlie or are associated with more complex and critical illnesses of adults and children. Clinical laboratory experiences in adult and pediatric acute care settings for enhanced knowledge and skill in providing nursing care for adults with acute, complex and critical illnesses. 6 lectures, 4 lab. Prereq: 301, 302 and 304.

312 Acute Care Nursing Theory (6) Theoretical component of 311. For RN's only. Prereq: 305.

313 Introduction to Nursing Research (3) Language of research, types of research designs, methodology approaches, sampling, data analysis, and significance of findings. Evaluation of existing and ongoing nursing research studies. Prereq: 302 or consent of instructor.

315 Clinical Nursing Practicum (2) Application of nursing theories, principles, and concepts to care of hospitalized clients. Prereq: 305. Prereq: or Coreq: 315. For RN's only. Satisfactory/No Credit only. Sp, Su

317 Wellness and Lifestyle (3) Models of wellness and holistic health within the framework of modern medicine, eastern philosophy, and recent discoveries about the interaction of man and body. Biopsychosocial interactions of lifestyle and genetic risk factors for cardiovascular and malignant diseases, wellness potential, and potential longevity. Process of lifestyle changes will be facilitated by faculty. Open to undergraduate students in all colleges.

320 Advanced Placement Credit: Care of the Adult Client (3) For registered nurses only. Satisfactory/No Credit only. Sp

321 Advanced Placement Credit: Care of the Childbearing Client (3) For registered nurses only. Satisfactory/No Credit only. Sp

322 Advanced Placement Credit: Care of the Child (2) For registered nurses only. Satisfactory/No Credit only. Sp

323 Advanced Placement Credit: Care of Client with Mental Disorder (1) For registered nurses only. Satisfactory/No Credit only. Sp

390 Clinical Practice Elective (1-3) Supervised clinical practicum in acute care settings; further development of clinical practice skills is emphasized. Prereq: 311. Satisfactory/No Credit only. Sp

401 Family Health Nursing (5) Nursing needs of families in health and in crisis. Provision of comprehensive care to families in the childbearing and childrearing phases of family life, including study of theories of human growth and development, family dynamics, and crisis intervention to provide nursing care to families experiencing normal pregnancy and childbirth and to those experiencing such health problems or complications as congenital anomalies, high risk birth, disturbed parent/child relationships, or gynecological disturbances. 5 lectures, 3 lab. Prereq: All 300 level nursing courses.

402 Family Health Nursing Theory (3) Theoretical component of 401. For RN's only. Prereq: 312.

403 Community Health Nursing (4) Application of the nursing process to care of individuals, families, and groups in home and community settings with special emphasis on health promotion, disease prevention, and control of communicable diseases. Epidemiological approach is used to identify aggregates within the population that are at risk for illness, disability, or premature death. Political, social, economic, and environmental issues related to community health nursing. 2 lec., 2 lab. Prereq: All 300 level nursing courses.

404 Nursing Management and Strategies (8) Theories, concepts, and principles of organization, planning, decision-making, and leadership and their application to management of nursing care for groups of clients; exposure to a variety of nursing service organizational models and staffing patterns; examination of legal, ethical, political, and social trends and nursing issues with implications for nursing practice; in depth study of a topic of particular interest to the student. 5 lectures, 3 lab. Prereq: 10 credits of 400 level nursing courses.

406 Nursing Leadership (3) Exploration of theories, concepts, and principles utilized to deliver and manage nursing care for clients in community or other health care settings, for professional practice. Prereq: or Coreq: 311. For non-nurse MSN students only. F

411 Psychosocial Long-Term Nursing (6) Nursing needs of clients whose health problems are of a developmental, behavioral, or long-term nature. Equal emphasis on prevention, wellness promotion, and rehabilitation. Nursing laboratory/clinical experiences with a psychiatric and chronic illness emphasis
NUTRITION AND FOOD SCIENCES

100 Introductory Nutrition (3) Nutritional concepts; current patterns of nutrition; food labels issues in nutrition; nutritional needs during life cycle; international nutrition concerns and/or issues. A student who has received credit for NFS 107 or 300 may not receive credit for this course. F, Sp

101 Food Principles (3) Food selection, safety, preparation, evaluation, meal planning, service. 2 hours and 1 lab. F, Sp

105 Food for the Next Century (3) Interdependence of people on this planet for food: global perspective from United States point of view. F

107 Honors: Introductory Nutrition (3) Nutritional concepts; current consumer issues in nutrition; nutritional needs during life cycle; international nutrition concerns and/or issues. A student who has received credit for NFS 100 or 300 may not receive credit for this course. F, Sp

200 Physiological Chemistry (4) Metabolism of carbohydrates, lipids, and nitrogenous compounds; role of vitamins, minerals, trace elements and enzymes and prothrombin and coagulation factors. Prereq: Chemistry 110 or equivalent. F

201 Food and Clinical Analysis (4) Principles, procedures, instrumentation for analysis of food and body fluids. Prereq: 100 or 107. 2 hours and 2 labs. F

300 Fundamentals of Nutrition (3) Nutrition in normal and altered health states during life cycle; nutritional analysis of diets. Prereq: Chemistry 110 or equivalent. 2 hours and 2 labs. F

301 Nutrition for Educators (3) Principles of nutrition; biochemical and physiological aspects of nutrition during the life cycle; nutrition education concepts and strategies. Prereq: 100 or 107. 3 hours and 1 lab. F, Sp

311 Science of Food (4) Chemical and physical properties of food related to functional and nutritional properties; sensory evaluation and concepts and techniques; effects of processing on food; application of food principles to meal planning and presentation; computer applications. Prereq: 100 or 107, 201. Micro 210. 3 hours and 1 lab. F

312 Science of Food (4) Chemical and physical properties of proteins and lipids related to functional and nutritional properties; application of food principles to meal planning and presentation; computer applications. Prereq: 100 or 107, 201, Micro 210. 3 hours and 1 lab. Sp

313 Advanced Nutrition (4) Integrated knowledge of physiological chemistry and physiology applied to understanding human nutrition requirements; computer analysis for dietary adequacy. Prereq: 100 or 107, 201, Zoology 230. F

410 Professional Issues in Dietetics (1) Dietetic registration, licensure, and party payments; dietetic practice; marketing dietetics; internship application preparation; public policy in dietetic practice. Prereq: Senior standing. F

411 Nutrition in Disease (4) Metabolic processes of disease; causes and treatment; health modification required. Prereq: 311, 312, 313. F

412 Food and Nutrition Resources Management (3) Integration of community food and nutrition resources; geographic, social, economic, educational, cultural, health characteristics associated with food and nutritional problems and the need for services by individuals in community; public policy. Prereq: 411. Sp

412 Experimental Food Science (3) Individual and group laboratory experimentation in food science; microbiology. Prereq: 311, 312, PSSc 471. 1 hour and 2 labs. F

414 Nutrient-Drug Interactions (2) Nutrient effects on efficacy and toxicity of drugs; drug effects on absorption, metabolism of nutrients. Prereq: 300 or equivalent. A, Sp

423 Foodservice Systems Design and Equipment (3) Physical facility design; production, delivery system analysis; equipment selection, purchase. Prereq: HRA 385, 321 or consent of instructor. A, F

450 Special Topics: Nutrition and Food Sciences (1-3) Development, issues, and problems in Nutrition and Food Sciences; topics variable. Prereq: Junior or Senior standing in NFS or consent of instructor. May be repeated. Maximum 3 credits. E

487 Honors: Nutrition and Food Sciences (1-3) Senior project. Prereq: Senior standing and consent of instructor. E

492 Field Experience: Nutrition and Food Sciences (1-3) Prereq: Junior or Senior standing, consent of instructor. Satisfactory/No Credit only. E

493 Directed Study: Nutrition and Food Sciences (1-3) Independent study. Prereq: Junior or Senior standing, consent of instructor. Satisfactory/No Credit only. E

ORNAMENTAL HORTICULTURE AND LANDSCAPE DESIGN

110 Environmental Horticulture (3) Basic plant sciences and their relationship to ornamental horticulture. Introduction to awareness and appreciation of ornamental plants, design and management of home landscapes. selection and use of herbaceous plants and turfgrasses. 3 hours. F

210 Floral Design (2) Principles and techniques of basic flower arranging with emphasis on arrangement for home and special use. Lab fee will be charged. 2 labs. Sp

220 Basic Landscape Plants (2) Identification, classification, adaptation, culture and landscape design uses of basic ornamental trees, shrubs, and vines. Prereq: 8 hours Botany or consent of instructor. 2 labs. E

230 Interior Plants (2) Identification, culture, design application and propagation of foliage plants used in the interiorscape; introduction to interiorscape management. 2 labs. Sp

280 Fundamentals of Landscape Design (3) History of landscape design as it relates to contemporary application; awareness and sensitivity to the interiorscape; basic graphical skills and design theory with an emphasis on residential landscape planning. Introduction to computer-aided design and basic tools. Prereq: 110, 220 or consent of instructor. 3 hours and 2 labs. E

310 Greenhouse Production and Management (3) Management and operation of a greenhouse for commercial purposes, research and institutional use, and home hobby purposes. Culture and management of economically important florists' crops in the United States; basic plant physiological principles, including photoperiodism, thermostomism, growth regulation, and nutritional requirements of crops. Prereq: 110, 220, 311 or 312. Instructor. 2 hours and 1 lab. F

320 Plant Materials (2) Identification, classification and design uses of ornamental plants including trees, shrubs, vines and herbaceous plants and generally excluding those covered in 220. Prereq: 220 or consent of instructor. 2 hours and 1 lab. F

330 Plant Propagation (3) Physiology, methodology, and environmental requirements for propagation. Prereq: 110 and 6 hours Botany or consent of instructor, 2 hours and 1 lab. F

340 Turfgrass Management (3) Practical turfgrass management; cultivation and sensitivity to the establishment; basic applied fertility programs, mowing, and irrigation practices, and thatch and compaction control. Prereq: Identification, classification and design uses of ornamental plants, 110, 220. Prereq: 110, Plant and Soil Science 210 and 8 hours of Botany or consent of instructor. 2 hours and 1 lab. F

350 Basic Landscape Construction (3) Basic materials and detailing. Introduction to the landscape construction concept, design, production, application of landscape materials, wood, concrete and masonry construction, site drainage, and landscape grading. Prereq: 220. 2 hours and 1 lab. E

360 Practicum in Landscape Construction (3) Practical experience in implementation of landscape development projects. Directed lab and field instruction in planning, development and the use of landscape construction including interpreting and implementing landscape design drawings and specifications. Prereq: 350. Two a hour. Sp

370 Grounds Maintenance (3) Identification and understanding of maintenance tasks; transplanting, soil amendments, growth control, irrigation, climate protection and pest control. Maintenance and use of equipment; management practices. Prereq: 110. 2 hours and 1 lab. F

380 Supplemental Landscape Design Graphics (2) Refinement of graphic skills. Sketches, elevations, sections, isometric projections, and perspectives. Lettering, plan graphics, color rendering, and other visual presentation media. Prereq: 280. Two a hour. F

410 Nursery Management and Production (3) Management methods as applied to retail and wholesale nurseries and landscape contracting firms. Methods of producing liners, container and field-grown woody ornamental plants. Prereq: 220, 330, and Plant and Soil Science 510. 2 hours and 1 lab. E

440 Advanced Turfgrass Management (4) Principles and scientific basis of turfgrass culture; adaptation, ecology, physiology, soil fertility, and grass nutrition; climatic influences on grass culture; physiology of clipping and water management; design, construction, and management of golf courses; physiological
influences of pest infestation and control measures. Prereq: 346 or consent of instructor. 3 hours and 1 lab. Sp

450 Specialty Landscape Construction (2) Design, materials, and construction techniques for specialized components of the landscape industry. Irrigation systems, outdoor lighting, pools and other water features, and interior space construction. Prereq: 350. Two 2 hour labs. F

460 Professional Practices in Landscape Construction and Management (2) Professionalism, salesmanship, proposals, bidding, estimating, specifications, and contract management in landscape services industry. Generally applicable to all landscape construction and contracting industries. Includes presentations by industry representatives. Prereq: 350 or consent of instructor. 2 hours. Sp

483 Advanced Landscape Design (4) Comprehensive application of landscape design skills. Design applications involving site layout, landscape grading, applied landscape construction, and planting design. Analysis, programming, design, detailing, estimating, and specifying applicable to a variety of landscape projects. Prereq: 280, 350, and 380. 1 hour and 2 three hour labs. Sp

490 Seminar (1-3) Current problems in ornamental horticulture and landscape design. Prereq: Senior standing. Sp

492 Off-Campus Internship (1-3) Work experience in applied ornamental horticulture and landscape industry. May be repeated. Maximum of 6 credits. E

493 Individual Problem Study (1-3) May be repeated. Maximum of 6 credits. E

PHILOSOPHY

110 The Human Condition: Value and Reality (3) The meaning of life, the existence of God, freedom of the will, human nature and value. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

111 The Human Condition: Knowledge and Reality (3) The place of mind in a material universe and the nature and possibilities of human knowledge. May be taken before 110. Writing-emphasis course: one in-class essay examination and 3000 words of writing outside the classroom.

120 Foundations of Western Thought: Antiquity through 1500 (3) Plato, Late Antiquity and the Medieval Period. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

121 Foundations of Western Thought: 1500 through Early Twentieth Century. Prereq: 120. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

130 Critical Thinking (3) Analysis, evaluation, and construction of reasoning in ordinary language.

135 Formal Logic (3) Introduction to formal deductive systems: propositional and predicate logic.

200 Special Topics (3) When content varies, may be repeated. Maximum 6 hours.

240 Ethics (3) Theories of ethical values. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

290 Social and Political Philosophy (3) Basic problems and concepts of social and political philosophy.

320 Ancient Western Philosophy (3) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

322 Medieval Philosophy (3) Development of medieval thought from St. Augustine to William of Ockham. Secondary and primary sources. (Same as Medieval Studies 322.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

324 Seventeenth- and Eighteenth-Century Philosophy (3) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

326 Nineteenth- and Twentieth-Century Philosophy (3) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

335 Intermediate Formal Logic (3) Metatheory of formal logic and philosophy of logic. Prereq: 135 or consent of instructor.

342 Business Ethics (3) Ethical problems as they confront both business as a social institution and individuals in business.

344 Professional Responsibility (3) Critical analysis of selected classic texts from philosophy, religious studies, and social sciences dealing with responsibility and the nature of professionalism. Theoretical principles and analytical skills applied to selected case studies and other detailed descriptions of professional practice from engineering/architecture, business/accounting; and at least one of law/politics; helping professions (social work, human services, ministry); teaching. (Same as Religious Studies 344.)

345 Medical Ethics (3) Ethical issues in medicine such as, abortion, euthanasia, human experimentation, fairness in health care delivery, the doctor-patient relationship. (Same as Religious Studies 345.)

349 War and Morality (3) Moral justification for war (just ad bellum): legal and moral constraints in war (just in bello).

350 Aesthetics (3) Philosophical discussion of art.

353 Philosophy and Literature (3) Nature of literature; philosophical assumptions in literary works.

360 Introduction to Philosophy of Science (3) Standard topics in philosophy of science: scientific method, nature of laws and theories, problem of induction, explanation, measurement. No background in logic is presupposed.

363 Conceptual History of Science (3) Historical evolution of thought in astronomy, mechanics, and the study of heat. Course includes Greeks through the early twentieth century. Prereq: 8 hours of physical science or consent of instructor.

370 Philosophy of Religion (3) Analysis of basic issues of religion. (Same as Religious Studies 370.)

374 Philosophy and Religion of India (3) (Same as Religious Studies 374.)

376 Buddhist Philosophy and Religion (3) (Same as Religious Studies 376.)

379 Religion and Philosophy in China (3) (Same as Religious Studies 379.)

380 The Concept of Woman (3) The nature of woman as it has been conceived by major western philosophers from Plato to Simone de Beauvoir. (Same as Women's Studies 380.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

382 Philosophy of Feminism (3) Various feminist theories and their application to social issues of concern to women today. (Same as Women's Studies 382.)

390 Philosophical Foundations of Democracy (3) Philosophical concepts relating to the nature of justification of the central values, principles, and concepts of democratic society. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

393 Marxism (3) Basic philosophical issues in Marxist thought: ideology, dialectics, praxis, the critique of modern society. (Same as Russian and East European Studies 393.)

395 Existentialism (3) Themes related to freedom and the nature of the human person in the thought of Kierkegaard and Nietzsche, and extends to Heidegger and Jaspers, Sartre and Merleau-Ponty.

400 Special Topics (3) When content varies, may be repeated. Maximum 6 hours.

411 Modern Religious Philosophies (3) (Same as Religious Studies 411.)

412 Classical Indian Systems of Philosophy: The Moksha Tradition (3) (Same as Religious Studies 412.)

420 Topics in History of Philosophy (3) One or more figures or movements from antiquity through mid-twentieth century. Prereq: 6 hours of philosophy or consent of instructor. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

430 Topics in Logic (3) Prereq: 6 hours of logic or consent of instructor. When content varies, may be repeated. Maximum 6 hours.

425 American Philosophy (3) Colonial to early 20th Century. Prereq: 6 hours of philosophy or consent of instructor. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

446 Theoretical Issues in Medical Ethics (3) Prereq: 240 or 345 or consent of instructor. (Same as Religious Studies 446.)

450 Philosophy of Science (3) Methodological and conceptual issues in the natural and social sciences: patterns of theory modification and replacement, the nature of explanation and causation, the status of theoretical entities. Prereq: 360 and one year of natural or social science, or consent of instructor.

465 Philosophy of History (3) Speculative and critical aspects of philosophy of history. Prereq: 6 hours of philosophy or consent of instructor.

473 Philosophy of Mind (3) Problems of mind and body in relation to consciousness and personal identity. Prereq: 6 hours of philosophy or consent of instructor.

475 Analytic Metaphysics and Epistemology (3) Topics in metaphysics and epistemology in recent Anglo-American tradition. Prereq: 6 hours of philosophy or consent of instructor.

476 Philosophy of Language (3) Survey of issues such as meaning, reference, and truth. Prereq: 6 hours of philosophy or consent of instructor.

479 Studies in Recent Continental Philosophy (3) Selected thinkers or topics from areas such as Existentialism, Phenomenology, Hermeneutics, Structuralism, Post-Structuralism. Prereq: 6 hours of philosophy or consent of instructor. When content varies, may be repeated. Maximum 6 hours.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

PHYSICAL EDUCATION

100 Orientation to Physical Education (2) Overview of the professional and disciplinary areas in physical education with special emphasis on introductory field experiences.

102 PE Major: Basketball (1) Fundamentals of basketball, including individual and team skills with consideration of techniques for effective teaching of these fundamentals.

103 PE Major: Tennis (1) Development of skills, rules and game strategies to an intermediate level in tennis with application to the various techniques of teaching.

104 PE Education Major: Gymnastics (1) Beginning to intermediate skills in tumbling and on selected men's and women's gymnastics apparatus. Tumbling skills include forward, backward, and balance skills. Apparatus include vaulting, balance beam, and pommel horse. Special emphasis on teaching techniques, safety, progression, and spotting.
105 PE Major: Folk and Square Dance (1) Basic folk and square dance steps, patterns and designs with emphasis on skill development, terminology, etiquette and teaching techniques.

106 PE Major: Track and Field (1) Basic skills of track and field with consideration of techniques for effective teaching.

271 PE Major: Soccer/Softball (1) Basic fundamentals, including individual and team skills with consideration of techniques for effective teaching.

272 PE Major: Volleyball (1) Elementary and intermediate volleyball skills, general rules, and strategy related to the game of volleyball with particular emphasis on teaching techniques and skill development.

273 PE Major: Golf (1) Fundamental skills, general rules, and strategies related to the game of golf with emphasis on skill development and teaching techniques.

274 Physical Education Major: Gymnastics II (1) Beginning to intermediate 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.

275 PE Major: Ballroom Dance (1) Basic ballroom dance patterns and designs, terminology and etiquette with application to the various techniques of teaching.

290 Human Motor Behavior (3) Theories and principles of motor development, physiological factors related to and affecting motor skill acquisition and performance. Prereq: At least sophomore standing.

291 Sport in American Society (3) For all university undergraduates on the study of sport in American society from a sociological perspective. (Same as Sociology 291.)

292 Field Studies I (3) Builds on observational techniques from Physical Education Orientation. Provides opportunities to lead, instruct, manage and test individuals and/or small groups in K-12 physical education settings. Includes peer teaching and video-taped analyses. Prereq: 100.

311 Coaching Football (1) Theoretical and practical application of various coaching techniques in football for the prospective secondary/college coach. Includes analysis and selection of appropriate game plans, specific conditioning and training programs, practice organization, player evaluation, scouting, individual and team offensive and defensive. Prereq: Consent of instructor.

312 Coaching of Basketball (1) Individual and team fundamentals for the high school coach; conditioning, schedule making, and other business arrangements. Prereq: Consent of instructor.

313 Coaching of Track and Field (1) Coaching methods and training techniques for various track and field events, including experience observing and working at meets and practices. Prereq: Consent of instructor.

314 Coaching of Gymnastics (1) Fundamentals used in the coaching and judging of competitive men's and women's gymnastics. Emphasis on the safety and supervision of competitive gymnastics skills. Prereq: Consent of instructor.

315 Coaching of Baseball (1) Theoretical and practical application of various coaching techniques in baseball for the prospective secondary/college coach. Topics include 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: Consent of instructor.

321 World History of Sport and Physical Education (2) Historical survey of the development of sport and physical education from ancient primitive to twentieth century civilization. Prereq: Admission to Teacher Education Program or progression to the major.

322 Fitness Activities (2) Methods of instructing and leading fitness activities, including jogging, recreation, exercise music, water activities, and fitness games. Prereq: At least junior standing and progression to the major.

325 Athletic Training Techniques (2) Prevention of athletic injuries through sound conditioning programs and practices; recognition and immediate treatment of injuries. Prereq: Progression to the major.

326 Practicum in Preschool Aquatics (2) Individualized planning and teaching of aquatic experiences to 3 to 5 year-old children within the context of a broad-based motor activity program. Prereq: Consent of instructor.

330 Wellness Through Health, Leisure, and Physical Activity (3) (Same as Health 330.)

332 Applied Anatomy (3) Structure and roles of bones, joints and muscles in human movement and exercise. Prereq: Junior standing and admission to Teacher Education Program or progression to the major.

355 Approaches to Physical Education for Children (3) Theories and applications to teaching and movement education. Prereq: Admission to Teacher Education Program.

345 Educational Games, Dance, and Gymnastics for Children (3) Theme approach to games/sports and creative dance. Prereq: Admission to Teacher Education Program.

356 Human Growth and Motor Development (3) Evolution of movement patterns in the context of structural and functional development, analysis of changes in motor performance and underlying attributes across the lifespan. Prereq: Admission to Teacher Education Program or progression to the major.

372 Philosophy of Sport and Physical Education (2) Theories of reality and value as they apply to sport with emphasis on ethical issues. Prereq: Admission to Teacher Education Program or progression to the major.

380 Special Topics (1-3) Study in selected disciplinary or professional areas of Physical Education. May be repeated. Prereq: Progression to the major.

391 Psychology of Coaching (2) Major topics and theories dealing with social-psychological factors affecting and relating to sport performance, with practical implications and applications to teaching and coaching. Prereq: Admission to Teacher Education Program or progression to the major.

405 Sociology of Sport (3) Social meaning, organization and process of sport. Difference between sport and play in various forms; for children and sport as an occupation, place of sport in mass culture, sport subcultures, and reciprocal influences of sport and culture. Prereq: 291 or Sociology 285, or permission of instructor. (Same as Sociology 405.)

409 Measurement and Evaluation of Physical Education (1) Relationship of measurement and evaluation in Physical Education. Critique, selection, and administration of appropriate affective, sport skill, and knowledge assessment instruments for children through adult age groups. Prereq: Junior standing and admission to Teacher Education Program or progression to the major.

410 Pre-Internship Seminar (2) Objectives and policies of the internship program. Must be completed the term immediately preceding the internship. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only. Sp, Su

411 Adapted Physical Education (2) Developmental disabilities, other physical/mental handicaps and various/variable characteristics of specific syndromes germane to motor development/programming for those with special educational needs.

412 Practicum in Adapted Physical Education (1) Teaching those with special needs. Observe, observation and assistance to physical education teachers who teach in schools for the handicapped and/or in which many handicapped individuals are mainstreamed. Prereq: Progression to the major. Coreq: 411.

413 Special Pracicum in Adapted Physical Education (1) Two sections will be offered: one for the major program with one-one-one with a 2-5 year-old child who is a special-education child and the section with a special education teacher, physical or occupational therapist, at a school for the handicapped. May be repeated. Maximum 3 hours.

414 Physical Activity and Fitness (2) Relationship of exercise to cardiocirculatory function, body composition, and healthy low back. Emphasis on tests that can be used in large groups with a minimum of equipment. Prereq: Progression to the major. Coreq: 414. (Same as Health 414.)

426 Practicum for Physical Education Majors (1-10) Experiences in the community to support and clarify career goals. May be repeated. Maximum 10 hours. Prereq: Consent of instructor and progression to the major.

427 Administration of Physical Education and Athletics (2) Topics in ongoing and long-range planning, management, and decision making strategies as related to physical education programs and athletics in the public schools. Prereq: Admission to Teacher Education Program or progression to the major.

428 Kinesiology of Sport and Physical Education (3) Emphasis on biomechanics and principles and their application to movement and neuromuscular fitness. Prereq: 322 and admission to Teacher Education Program or progression to the major.

429 Physical Activity and Fitness (2) Current and classic literature in physical education.

429 Program Planning in Physical Education (2) Curriculum theory, principles, practices and issues specific to physical education with opportunities to develop and evaluate K-12 physical education programs. Prereq: Admission to Teacher Education Program.

432 Kinesiology of Sport and Physical Education (3) Theme approach to games/sports and creative dance. Prereq: Admission to Teacher Education Program or progression to the major.

442 Administration of Physical Education and Athletics (2) Topics in ongoing and long-range planning, management, and decision making strategies as related to physical education programs and athletics in the public schools. Prereq: Admission to Teacher Education Program or progression to the major.

450 Field Studies II (3) For physical education majors to design and implement learning units and evaluation techniques appropriate for K-12 physical education settings. Includes video-taping of learning experiences in the school setting. Prereq: 292 or 466 and admission to Teacher Education Program.

469 Motor Development Laboratory: Preschool or Primary (3) Application of selected perceptual-motor development, movement education, and pedagogical concepts to performance assessment and motor task/lesson design and presentation to normally developing preschool or primary grade children. Participation in intra- or interdisciplinary research projects. Prereq: 100 and admission to Teacher Education Program.

469 Motor Development Laboratory: Preschool or Primary (3) Application of selected perceptual-motor development, movement education, and pedagogical concepts to performance assessment and motor task/lesson design and presentation to normally developing preschool or primary grade children. Participation in intra- or interdisciplinary research projects. Prereq: 100 and admission to Teacher Education Program.

478 Internship I: Grades K-12 (2-6) Topics in ongoing and long-range planning, management, and decision making strategies as related to physical education programs and athletics in the public schools. Application for internship should be made upon admission to Teacher Education Program. Prereq: 410 and admission to Teacher Education Program. Satisfactory/No Credit only, F

478 Internship II: Grades K-12 (2-6) Demonstration of professional competence in planning, instruction, and classroom management. Internship is completed in local public schools. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only, Sp
254 Yoga and Relaxation (1)

PHYSICS

121-122 Introductory Physics (3,3) For students whose major is outside the physical sciences. Concepts of physics developed by observation of phenomena and logic; using a minimum of mathematical analysis. 121-122 Description of motion, forces, energy and momentum, properties of matter. 122-Electricity, magnetism, light, topics from modern physics. Prereq: Algebra.

131-132 Fundamentals of Physics: Mechanics and Heat (4,4) For engineers and liberal arts majors in mathematics and the physical sciences. Basic Engineering 121-131 is equivalent course for engineers. Must be taken in sequence. Coreq: Mathematics 141-142. 3 hours lecture, 2 hours lab.

137-138 Honors: Fundamentals of Physics: Mechanics and Heat (4,4) Honors for physics and engineering physics majors and qualified students from other disciplines. Must be taken in sequence. Coreq: Mathematics 141-142. 3 hours lecture, 2 hours lab.

141-142 Nature of the Physical World (3,3) Concepts, vocabulary, and principles of physical sciences to establish a unified picture of the physical universe. 141-Principles of mechanics, electricity, and wave motion are developed and applied to fields such as solar systems, atomic and molecular behavior, radiation, dynamic changes in atmospheres and in earth's crust. 142-Principles applied to topics such as stellar and galactic phenomena, nuclear energy, cosmology, atmospheric and oceanic phenomena, drifting continents, and science and society. Must be taken in sequence. 3 hours lecture including demonstration lab.

145 Physics of Athletic Activity (3) Principles of physics, particularly mechanics and energy with emphasis on their role in physical activities, particularly sports-related. Topics include statics, equilibria, linear and angular motion, momentum, force, work, and energy. 3 hours lecture and demonstration.

151-152 Elements of Physics for Computer Scientists (4,4) For students majoring in computer science. Principles of mechanics, heat and thermodynamics, wave motion and sound, electricity and magnetism, light, relativity, and modern physics. Must be taken in sequence. Coreq: Mathematics 141-142. 3 hours lecture, 2 hours lab.

151 Physics of Music (3) Production, transmission, and reception of sound waves. Frequency, intensity, timbre. Basic acoustics of instruments and voice. 3 hours lecture and demonstration.

221-222 Elements of Physics (4,4) Basic physical principles and applications required in pre-medical, pre-dental, pre-pharmacy and pre-veterinary programs. 221-Mechanics, heat, wave motion, and optics. 222-Electricity and magnetism, modern physics. Must be taken in sequence. 3 hours lecture, 3 hours lab. Coreq: Mathematics 121-122 or 141-142 or 151-152.

231 Fundamentals of Physics: Electricity and Magnetism (3) For engineers and liberal arts majors in mathematics and the physical sciences. Required of all engineering students. Coreq: 131-132 or Basic Engineering 121-131. Coreq: Mathematics 231. 2 hours lecture, 3 hours lab/recitation.


237 Honors: Electricity and Magnetism and Light (4) Honors course for selected students admitted on basis of performance in 131-132, 137-138 or Basic Engineering 131-132. Coreq: Mathematics 231. 3 hours lecture, 3 hours lab.


321 Thermal Physics (3) Concepts of temperature and laws of thermodynamics; elementary statistical mechanics; applications to physical and chemical problems. Prereq: 311 or 231 and consent of instructor.

340 Relativity and the Structure of the Atom (3) Special relativity and the wave model of the atom. Fundamental concepts of modern physics and their applications to atomic systems. Prereq: 231.

341-342 Structure of Matter (3,3) 341-Subatomic physics; including physics of the nucleus and elementary particles. 342-Physics of molecules and condensed matter. May be taken in either order. Prereq: 340.

361-362 Electronics Laboratory (3,3) Electronic components, circuits and instruments for physicists, with emphasis on application of simple circuits to instrumentation. 361-Analog electronics, including fundamental network theorems, complex impedance and admittance, frequency response and resonance, feedback, operational amplifiers, oscillators, and various semiconductor devices, as applied to scientific instrumentation. 362-Digital electronics, including elementary building blocks of relevance to data acquisition systems, digital to analog conversion, analog to digital conversion, simple applications of microprocessors. Prereq: 222 or 232: 6 hours lab per week.

390 Junior Seminar (1-3) Topic of current interest. Prereq: Introductory Physics. May be repeated with consent of department. Maximum 6 hours.

401 Background of Physics (2) Historical development and philosophical foundations of natural science. Classical theories of gravitation, electromagnetism, and relativity. Unifying mathematical principles underlying physical applications. Readings from important original papers, thought-provoking problems and order-of-magnitude calculations combining different fields of classical physics. Written report on independent study. Prereq: Senior standing in Physics or consent of instructor. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

402 Forefront of Physics (2) Modern developments in physics: various forms of quantum mechanics, quantum electrodynamics and recent theories of particles, fields and their unobserved qualities in physics, experiments of current interest, readings in recent literature, and applications in other fields. Final oral report and term paper. Prereq: 461 or consent of instructor. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.


421 Modern Optics (4) Transmission of light in uniform, isotropic media, reflection and transmission at interfaces; mathematics of wave motion and interference effects. Rudiments of Fourier optics and holography. Prereq: 431 or 232 and consent of instructor. 3 hours lecture, 3 hours lab.

425 Principles of Non-Destructive Testing (3) (Same as Engineering Science and Mechanics 425.)


178 Courses of Instruction

461-482-463 Modern Physics Laboratory (3,3,3) Vari-ety of experimental techniques, including spectroscopy, electronic measurements, computer interfacing, res-onance, detectors and statistical analysis, applied to ex-amples in physics, biology, molecular, and solid state systems. Classic experiments in quantum phys-ics for advanced undergraduates. Prereq: 232 and a ba-sic knowledge of circuits. F

471-472 Health Physics (3,3) Radioactivity, interac-tion of electromagnetic radiation with matter, radiation quantities and units, point kernel and extended sources, x-rays and gamma rays, neutron activation, interac-tion of charged particles with matter, stopping power, range-energy relations, counting statistics, shielding, dosimetry, waste disposal, criticality prevention, radia-tion biology and ecology. Prereq: 340 or 341.

490 Senior Seminar (1-3) Topics of current interest. May be repeated with consent of department. Maxi-mum 6 hours.

491 Foreign Study (3-15)

492 Off-Campus Study (3-15)

493 Research and Independent Study (1-3) Research and study in field of particular interest with faculty guidance. Consent of department is required. Maxi-mum 6 hours.

PLANNING

401 The City in the United States (3) Development and character of United States cities. Contemporary issues and selected case studies. (Same as Urban Studies 401.)

402 Survey of Planning (3) History of city develop-ment and of planning with special attention to the United States experience in urban and other levels of planning. State of the art, the process, the compre-hensive plan, implementation devices. Planning issues in society. Not for credit for M.S.P. degree. (Same as Urban Studies 462.)

PLANT AND SOIL SCIENCE

210 Introduction to Soil Science (4) Differences in soils; soil genesis; physical, chemical, and biological properties of soil; relation of soils to land use and pollution; soil management relative to tillage, erosion, moisture supply, temperature, aeration, fertility, and plant nutrition. Introduction to fertilizer chemistry and use. Prereq: Chemistry 130 or equivalent. 3 hours and 1 lab. F

230 Introduction to Crop Science (3) Fundamentals of structure, classification, growth and reproduction of plant and animal products basic to plant science. Principles and methods of growing several of the world's important agronomic, fruit and vegetable crops, detailing their origin and cultural require-ments. Prereq: Botany 110, 120 or Biology 510. F-A.

282 Soil Morphology (1) Intensive course involving describing, classifying and interpreting soils in prepara-tion for regional and national soil judging contests. Prereq: 210 and consent of instructor. May be repeat-ed. Maximum 4 hours. 1 hour and 1 lab. F, Sp.


312 Soil and Water Conservation (3) Principles, prac-tices and control of soil erosion by water and wind; farming methods in contour plowing, minimum tillage farming; forest management; soil-water-plant relationships. Prevention of soil, water, and air con-taminations in agriculture. Prereq: 210. 2 hours and 1 lab. Sp.

331 Field and Forage Crops (3) Agronomic principles of crop production and management. Crop improve-ment, crop protection systems, tillage, fertilization, pest management, harvest and utilization of major field and forage crops. Prereq: 210 or 230. 2 hours and 1 lab. Sp.

332 Fruit Crops (3) Fundamentals of site selection, Fruit propagation, tree training, pest control and relat-ed management factors for deciduous fruit crops will be emphasized. Prereq: 230. 2 hours and 1 lab. F-A.

333 Vegetable Crops (3) Characteristics, economic importance, and methods of production of vegeta-bles for fresh and processing markets with emphasis on both warm and cool season crops. Prereq: 210 or 290. 2 hours and 1 lab. Sp-A.

342 Weed Management (3) Principles of weed inter-fece, integrated management, herbicide action, weed control and a review of species; behavior, specific recommendations for various crop and non-crop situations. Prereq: 210. 2 hours and 1 lab.

392 Practicum in Agriculture (2-4) Working with agri-cultural-related enterprises in area of student's career interest. May not be used as 300-level prerequisite for any course in Plant and Soil Science. Prereq: Consent of advisor and faculty committee.

401 Seminar (1) Current topics in the plant and soil sciences. Techniques of effective oral and written pro-fessional presentation; professional ethics; review of literature; assignments for written and oral presenta-tions. Senior standing. Sp.

411 Soil Microbiology (3) Soil microbial population and the soil ecosystem; microbial transformations of organic and inorganic materials; soil microorganisms and their role in decomposition of residues; dynamics of soil organic matter. Prereq: 210 and Biochemistry 311 or consent of Instructor. F-A.

412 Soil Genesis, Classification and Mapping (3) Soil genesis and formation; observing and describing morpholgy of agricultural and forest soils; chemical and physical properties, classification; mapping. Two Saturday field trips required. Prereq: 210 or consent of instructor. F-A.

413 Soil Chemistry (3) Structure and chemical prop-erties of soil materials with emphasis on the colloidal fraction as it relates to exchange, chemical equilibria, soil acid/base, oxidation-reduction, weathering, nutrient availability and waste disposal. Prereq: 311 or con-sent of instructor. F-A.

414 Soil, Land Use and the Environment (3) Soil as an environmental component and soil properties affecting land use. Soil as a resource in development planning including nonengineering aspects of site selection for land use, soil survey and resource data in land use, recognition and prevention of soil pollution. Prereq: 210 or consent of instructor. Sp-A.


432 Agricultural Climatology (3) Interactions between world, regional and local climates and agricultural sys-tems; quantification of macro- and micro-climates, effects of macro- and micro-climatic factors on plant and animal distributions and productivities. Prereq: One year of physical or biological science, junior stand-ing. 2 hours and 1 lab. F-A.

433 Agricultural Pesticides (3) Regulation of pesticide development and use; environmental impact of pesticides used in agricul-ture, forestry and related areas. Prereq: 1 year of biological sciences and 1 semester chemistry. 2 hours and 1 lab. Sp.

453 Principles of Plant Breeding (3) Genetic princi-ples and techniques used in crop improvement. Prereq: Biology 220 or equivalent. 2 hours and 1 lab. Sp.

471 Statistics for Biological Research (3) Notation, descriptive statistics, probability, distributions, confidence intervals, student's t and chi-square tests, analysis of variance, mean separation procedures, linear regres-sion and correlation. Prereq: Math 121 or equivalent. 3 hours and 1 rec. F.

493 Problems in Plant and Soil Science (1-3) Special research problems of interest to students in plant and soil science. May be repeated. Maximum 6 hours. E

POLITICAL SCIENCE

101 United States Government and Politics (3) Intro-duction to fundamental institutions and processes of American National Political System, constitution, voting, presidency, congress and the courts.

102 Introduction to Political Science (3) Analysis of politics and political systems in various countries.

107 Honors: United States Government and Politics (3) Analysis and exploration of the American political system for students with superior ability. Admission by permission of department for students with at least a B average; entering freshmen accepted on basis of strong placement scores and high school record.

301 Introduction to Political Analysis (3) Nature, char-acter, and functions of research design, data collection, and statistical techniques used in the study of poli-tics.

310 Political Community (3) Examination of a variety of value systems and social and political structures related to political community.

311 Contemporary Issues in American Public Policy (3) Selected public policy issues confronting the nation, including the background, nature, and effects of pre-sent policies, and options for the future. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

312 Popular Culture and American Politics (3) Popu-lar culture related to American politics and government focusing on the role of film, television, fiction, music, drama, art and sports. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

315 Tennessee Government and Politics (3) Major elements in Tennessee government and politics.

320 State Government and Politics (3) Setting, insti-tutions, and processes of government in the fifty states; generalizations and comparisons, with emphasis on federalism and inter-governmental relations.

321 Urban Politics and Process (3) Development of policies and policy-making in the Modern American city. (Same as Urban Studies 351.)

322 Minority Group Politics in the United States (3) Content varies. May be repeated with the consent of the department. Maximum 6 hours. (Same as Afro-American Studies 322.)

330 Law in American Society (3) Law as a process through which social problems are addressed in the United States. Examples from case law, legislation, and administrative regulation. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

331 Judicial Process (3) Courts as components of political systems, and public policy formulation through judicial decision making.

340 Introduction to Public Administration and Public Policy (3) Public agencies, their organization, per-sonnel, and financial management and administration; responsibility; the policy-making process, political envi-ronment.

350 Political Change in Developing Areas (3) Characteristics and problems of political changes with primary focus on developing areas. Writing-emphasis course: at least one in-class essay exami-nation and 3000 words of writing outside the classroom.

355 Latin American Government and Politics I (3) Introduction to contemporary Latin American government and politics. (Same as Latin American Studies 355.) Writing-emphasis course: at least one in-class essay exami-nation and 3000 words of writing outside the classroom.

361 Politics in Western Democracies (3) Political cul-ture patterns, and institutions of Western democratic systems. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

365 Introduction to International Relations (3) Resource availability, international economics, international secur-ity and peace (imperialism, war, diplomacy, the balance
of power, international law and international organization.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

366 United States Foreign Policy Process (3) Processes whereby foreign policies are made and implemented, focusing on interaction within federal bureaucracy and roles of the President, Congress, the media and public opinion.

370 Contemporary International Problems (3) Analysis of current International events.

374 American Political Thought (2) Major themes and ideas in American political thought related to the development of American political institutions, values, and processes. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

387-388 Junior Honors Seminar (3,3) Required of honors majors; admission with consent of department.

410 Special Topics in United States Government and Politics (3) May be repeated with consent of department. Maximum 6 hours.


420 Political Attitudes and Opinions (3) Nature, formation, development, and dissemination of politically relevant attitudes and opinions in the American political system.

421 Political Parties and Interest Groups (3) Role of political parties and organized groups in American politics and government.

422 Political Campaigns and Elections (3) Nature of campaigns and elections in American political process.

430 United States Constitutional Law: Sources of Power and Restraint (2) Judicial review, constitutional powers of President and Congress, federalism, sources of regulatory authority, and constitutional protection of political and economic rights.

431 United States Constitutional Law: Civil Rights and Liberties (3) Current issues in civil rights and liberties including: first amendment freedoms, equal protection, privacy and the rights of the accused.

440 Public Management and Human Resources (3) How to mobilize and manage technical and human resources in pursuit of public sector organization goals.

441 Budgetary Process and Financial Management (3) Fiscal planning, budget and expenditure processes in government, their policy and administrative implications.

442 Administrative Law (3) Legal dimensions of administrative power and procedures, and constitutional controls over administrators.

452 Black African Politics (3) Recent evolution and current political environment of Black African nations. (Same as Afro-American Studies 452.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

454 Government and Politics of China and Japan (3) Political institutions, structures and processes in China and Japan. Writing emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

455 Latin American Government and Politics II (3) Selected topics on Latin American political dynamics, including consideration of leading theoretical explanations. (Same as Latin American Studies 455.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

459 Government and Politics of the Soviet Union (3) Origins and development of the Soviet political system, and selected policy areas. (Same as Russian and East European Studies 459.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

460 Revolution (3) Characteristics, theories, and consequences of revolution with particular focus on left-wing revolutions and movements.

461 Policy Making in Democracies (3) Comparative approach to theory and process of making public policies between democratic systems.

463 Contemporary Middle East Politics (3) Governments and movements in the Middle East, their characteristics, bases, and interrelationships.

464 Special Topics in Comparative Governance (3) May be repeated with consent of department. Maximum 6 hours.

469 Soviet Foreign Policy (3) Soviet international behavior since 1917 and selected problems of Soviet foreign policy post World War II. (Same as Russian and East European Studies 469.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

470 International Law (3) Nature and development of international law and compliance with it. Particular attention to function of international law in the context of international conflict.

475 Ancient and Medieval Political Thought (3) Major political thinkers from Socrates to Marsilio of Padua. (Same as Medieval Studies 475.)

476 Modern Political Thought (3) Major western political thinkers from Machiavelli to Marx.

487-488 Senior Honors Thesis and Seminar (0-6) Required of honors majors; admission with consent of department. Students register for zero hours credit fall semester and six hours credit in spring semester. Credit is granted on completion of thesis.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

PORTUGESE

111-112 Elementary Portuguese (3,3) Introduction to Portuguese. May not be taken for credit by students with two years of high school or one year college Portuguese. Must be taken in sequence. Language Laboratory required.

211-212 Intermediate Portuguese (3,3) Stresses reading, writing, listening, and speaking of Portuguese to prepare for upper division courses in the language. Must be taken in sequence. Language Laboratory required.

300 Portuguese for Spanish Speakers (3) Accelerated class for beginning students of Portuguese with a strong background in another Romance language. Introduction to grammar, reading and culture of Portugal and Brazil. Prereq: 3 hours at 300 level in another Romance language or equivalent.

311 Aspects of Luso-Brazilian Literature (3) Luso-Brazilian literature, with emphasis on contemporary works. Genres may vary. Prereq: 212 or equivalent. (Same as Latin American Studies 311.)

323 Conversation and Composition (3) Development of speaking, listening and writing skills in Portuguese; some review of grammar. Prereq: 212 or 300 equivalent.

341-432 Directed Readings in Brazilian and Portuguese Literature (3,3) May be repeated with consent of instructor. (Same as Latin American Studies 431-432.)

491 Foreign Study (1-15)

110 Biological Basis of Behavior (3) Survey of theories and research concerning the role of genetic factors, nervous and endocrine systems, and other biological influences on behavior. Recommended: 110 or equivalent.

220 Behavior and Experience: Humanistic Psychology (3) Behavioral and phenomenological analysis of individual experiences and their development in natural environments.

300 Child Psychology (3) The normal child from concept through infancy, childhood, and adolescence. Physical, cognitive, social, and emotional development. Prereq: 110 or equivalent and 200 or 210.

310 Learning and Thinking (3) Survey of theory and findings of research concerning both humans and nonhumans. Prereq: 110 or equivalent. Recommended: 210, 220.

320 Motivation (3) Survey of theories and related research; discussion of applications. Prereq: 110 or equivalent. Recommended: 210, 220.


359 Laboratory in Human Relations (3) Interpersonal relationships and communications skills in small groups. Prereq: 110 or equivalent, and consent of instructor. May be repeated. Maximum 6 hours.

360 Social Psychology (3) Theories, methods, and findings of research on physical, emotional and individual behavior in a social context. Prereq: 110 or equivalent.

370 Ethology and Sociobiology (3) Basic concepts in the evolutionary approach to behavior, including applications to psychology, the social sciences, and the arts. (Same as Zoology 370.)

382 Contemporary Topics in Psychology (3) Current issue or problem, such as architectural psychology, impact of technology, artificial intelligence, or stereo-types. Different topic each semester. Prereq: 110 or equivalent. May be repeated. Maximum 9 hours.

385 Statistics in Psychology (3) Descriptive statistics; logic of hypothesis-testing and statistical inference. Basic parametric and non-parametric tests. Prereq: Mathematics 110. Not open to students with credit in Mathematics 215. Statistics 201, or equivalent.

395 Methods of Research in Psychology (3) Fundamentals in the design, conduct, and interpretation of research, including systematic observation, experiments, quasi-experiments, and program-evaluations. Focus on both laboratory and natural settings. Prereq: 110 or equivalent.

396 Laboratory in Psychology (2-3) Introduction to techniques used in the laboratory to study different topics is psychology, such as perception, memory, learning, and social behavior. Supervised experience in the use of laboratory techniques, collection and interpretation of data. Different topic each semester. Prereq: 110 or equivalent, 210, 220, 385, 395. May be repeated. Maximum 9 hours.

399 Supervised Research and Field Work (1-3) Field experience in community-based research and service settings. Prereq: 110 or equivalent, 210, 220, 385, 395. May be repeated. Maximum 12 hours in 398, 498, 491, 492, and 493 combined may be applied toward the major.


409 Group Facilitation (3) Study of theory and techniques of small group interaction. Prereq: 359 and consent of instructor. May be repeated. Maximum 6 hours.

3000 words of writing outside the classroom.

305 Communicable and Noncommunicable Diseases
(3) Modern concepts of diseases; etiology of common communicable and chronic disease problems including prevention and control. Prereq: 1 year of biological science or consent of instructor. F, Sp

310 Environmental Management and Control (3) Conventional principles of control of disease-producing agents in our environment. Emphasizes concepts for effective application of control principles to vocational endeavors and/or daily living activities. Includes: Drinking water quality (chemical, physical and biological), waste management (solid, liquid and hazardous), vector control, safe food management, recreational sanitation and safety to include pool management, shelter hygiene (homes, child care, schools, hospitals, etc.), occupational health and safety. F, Sp

490 Consumer Health (3) (Same as Health 440.)

410 Health in the Work Environment (3) Fundamental activities involved in field of industrial health aimed at reducing health problems for employees. Emphasis on workplace health hazards and problems of concern to nurses, medical staff, management, engineers and others involved in industrial health and safety fields. Prereq: Consent of instructor. May not be taken for credit by occupational health concentration (MPh) majors. F, Sp

494 Special Topics (3) Instructional or research topics to be assigned. Prereq: Consent of instructor. May be repeated under different topic. Maximum 6 hours. F, Sp

493 Directed Independent Study (1-3) Individual study of selected issues. Prereq: Consent of instructor. May be repeated. Maximum 6 hours. E

RECREATION AND LEISURE STUDIES

110 Foundations for Leisure Studies and Services (3) Focuses on understanding concepts, principles, and practices relevant to providing leisure service including philosophy, history and theory, programming, economics, leadership, and a survey of leisure services organizations and occupational opportunities. F, Sp

210 Dynamics of Recreation Leadership (3) Theories, practices and concepts as they apply to all roles of recreation leadership. F

220 Introduction to Therapies and Medical Terminology (1) Responsibilities of recreation, occupational, physical, horticulture, art, and music therapists. Basic terminology used in medical environment. Sp

250 Specialized Study in Leisure Education (1-3) Focus on developing positive attitudes toward leisure. Concepts of leisure and its role in personal adjustment and physical health. Creative Cooking, Bike Hikes, New Games. E

290 Field Practice (1-2) Supervised practice in approved agency offering leisure services. Each hour's credit requires 25 hours of work in field agency. For recreation students only. Prereq: Permission of instructor. E

310 Leisure Program Development and Evaluation (3) Essential elements and basic principles involved in organization, administration, marketing, evaluation of various types of recreation programs with emphasis on development of program objectives, practical and comprehensive designs and evaluation for population and facility within student's particular area of interest. Prereq: 210 or consent of instructor. Sp

320 Analysis of Leisure and Special Populations (3) Principles, concepts, historical development of recreation, therapeutic recreation, and leisure services to special populations. Emphasis on legislation, attitudes, barriers to participants, mainstreaming, advocacy, as related to leisure fulfillment. Prereq: 220 or consent of instructor. F

390 Field Practice (1-2) Supervised practice in approved agency offering leisure services. Each hour's credit requires 25 hours of work in field agency. For recreation majors only. Prereq: 290 and permission of instructor. E

RESEARCH STUDIES

101 World Religions in History (3) Introduction to religion in culture and society, including examination of religious traditions from China, India, and the Mediterranean world. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

102 The Comparison of World Religions (3) Introductory course to world religions. Includes examination of individual religious traditions and their application in the contemporary world. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

211 Ways of Understanding Religion (3) Sources and methods used in the study of religion and religious experience. Emphasis on in-class essay examination and 3000 words of writing outside the classroom.

212 Criticism of Religion (3) Classical and contemporary forms of criticism of western religious thought as in the work of Marx, Freud, Nietzsche, and current feminist and liberation movements. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

232 Varieties of Religious Community (3) How different forms of religious communities (cults, tribes, sects, monastic orders, denominations, families, etc.) have sought to reject, reinforce, transform, ignore, or dominate their culture and society. (Same as Sociology 223.)

235 Issues in Religious Studies (1-3) Introduction to the study of religion through selected themes, problems, controversies, or contemporary issues. Variable content. May be repeated. Maximum 6 hours.

301 Religious Myth, Symbol, and Ritual (3) Distinctive modes of religious expression and theoretical approaches appropriate to their particular social and cultural functions in religions.
302 Religion of Primitive Peoples (3) Religions of selected non-literate peoples. Role of religion in their social and cultural systems. (Same as Anthropology 302.)

305 Contemporary Religious Thought (3) Major themes, issues, and thinkers in twentieth century religion.

308-310 Elementary Classical Hebrew (3,3) Basic elements of Hebrew phonology, script, morphology and syntax. Introduction to basic elements of text, form, and literary criticism.

311 Ancient Hebraic Religious Traditions (3) Development of ancient Israelite and early Jewish traditions with special emphasis on practices of meditation and the use of the koan. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

312 Religious Aspects of Biblical and Classical Literature (3) Ways in which contemporary modes of literary study enhance appreciation of biblical and classical material. Ways in which the western literary tradition has appropriated and recast the biblical and classical heritage. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

313 Religious Aspects of Modern Literature (3) Issues raised for religious inquiry in contemporary literature. Relations of religious and moral considerations to problems of literary analysis; relation between religious language and forms of human expression (symbol, metaphor) as they are used in modern literature. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

315 Reformation Europe, 1500-1650 (3) (Same as History 315.)

316 Topics in Religion and Literature (3) Selected themes that suggest points of intersection between literary art and the religious imagination. Variable content. May be repeated. Maximum 6 hours.

319 Sociology of Religion (3) (Same as Sociology 319.)

321 New Testament Origins (3) Influence of pre-Christian Judaism and Greek culture and philosophy on early Christianity. Motivations and guiding concepts which led to the formation of the New Testament. Victory of the Christian Church over the forces of persecution and the Constantinian settlement (311 A.D.) (Same as History 321.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

322 Christian Thought (3) Principal forms of Christian thought and institutions through the interpretation of representative thinkers and movements from Augustine to Kierkegaard. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

326 Images of Jesus (3) Major portrayals of Jesus Christ from the first to the twentieth within the context of the cultural milieu which gave birth to each. Extensive use of slides, video material, recordings, and literature.

329-330 Intermediate Classical Hebrew (3,3) 329-Readings in narrative material from the Hebrew Bible. 330-Readings in poetic and prophetic material from the Hebrew Bible. Prereq: 325 or consent of instructor.

331 Judaism (3) Comprehensive introduction to the historic traditions, cultus and religious institutions of Judaism, and interactions with modern culture.

332 Islam (3) Comprehensive introduction to the origin and early history of Islam, rapid spread as a missionary religion, development of theology and culture, and interactions with modern culture. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

342 Religious Ethics (2) Selected ethical theories and models of morality of religious communities and thinkers, their action-guides for individuals and institutions, their application to persons and social problems.

344 Professional Responsibility (3) (Same as Philosophy 344.)

345 Medical Ethics (3) (Same as Philosophy 345.)

351 Introduction to United States Religious History (3) Religious traditions, movements and movements in the United States, formation of denominations, church and state, American theology, non-protestant traditions, War of the Worlds. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

352 African-American Religion in United States (3) Historical and critical examination of formation and development of African-American religious thought and institutions in America. (Same as Afro-American Studies 352.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

353 Topics in African-American Religion (3) Selected figures, themes, movements, or problems in the African-American religious tradition. Variable content. May be repeated. Maximum 6 hours.

355 Religion and Culture in the United States (3) Selected figures, movements, and problems in American religious life, thought, and culture from pre-colonial period to present. Prereq: 351 or consent of instructor. May be repeated. Maximum 6 hours. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

367 Philosophy of Religion (3) (Same as Philosophy 370.)

371 Eastern Religions and Western Thought (3) Comparative study of selected movements, thinkers, and practices of religious traditions, Asian and Western. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

373 African Religions (3) Religions of the indigenous peoples of Africa, including how myth, rites, and symbols and certain cultural and political movements in Africa have been and are being informed by religious sensibilities. (Same as Anthropology 375 and Afro-American Studies 373.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

374 Philosophy and Religion in India (3) Survey of the development of the major non-Buddhist themes of philosophical and religious thought in India. (Same as Philosophy 374.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

376 Buddhist Philosophy and Religion (3) Survey of the origins of Buddhism in India and further development of Buddhist philosophy and religion in India, China, Korea, Japan, the countries of Southeast Asia, and beyond. (Same as Philosophy 376.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

379 Religion and Philosophy in China (3) Traditional thought and religion of China in its cultural setting as basis for understanding modern China. (Same as Philosophy 379.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

380 Zen Buddhism (3) Historical, philosophical, and meditational aspects of Zen. Special emphasis on motifs of emptiness, no-mind, and enlightenment and on practitioners of meditation and the use of the koan. Recommended Prereq: One or more of the following: 376, 379, 383.

389 Literature of the English Bible (3) (Same as English 389.)

390 Topics in Religious Studies (3) Selected figures, themes, and issues in a variable content. May be repeated. Maximum 6 hours.

411 Modern Religious Philosophies (3) Religious implications of major Western thinkers and movements from Nietzsche to the twentieth-century German Idealists. (Same as Philosophy 411.)

412 Classical Indian Systems of Philosophy: The Moksha Tradition (3) Selected writings and philosophico-cultural problems of the traditions of Sanāskṛta. Yogā, Vedanta, Buddhism, or Jainism. Prereq: Religious Studies/Philosophy 374 or consent of instructor. (Same as Philosophy 412.)

416 Jesus and Paul Compared (3) Central ideas and concepts of each person compared with equivalent concepts in the other. Advanced study of the Gospels and Epistles of Paul, involving extensive independent research.

421-422 Elementary Sanskrit I, Elementary Sanskrit II (3,3) 421-Introduction to the grammar of classical Sanskrit. 422-Introduction to the reading of epic and classical Sanskrit texts. Prereq: 421 or consent of instructor.

425 Seminar in Western Religions (3) Selected figures, themes, movements, and problems. Prereq: Consent of instructor. Variable content. May be repeated. Maximum 6 hours.

430 Seminar in American Religions (3) Selected figures, themes, movements, and problems. Prereq: Consent of instructor. Variable content. May be repeated. Maximum 6 hours.

435 Seminar in Asian Religions (3) Selected figures, themes, movements, and problems. Prereq: Consent of instructor. Variable content. May be repeated. Maximum 6 hours.

440 Seminar in Comparative Religion (3) Selected figures, themes, movements, and problems. Prereq: Consent of instructor. Variable content. May be repeated. Maximum 6 hours.

446 Theoretical Issues in Medical Ethics (3) (Same as Philosophy 446.)

462-463 Intermediate Sanskrit I, Intermediate Sanskrit II (3,3) 462-Advanced grammatical constructions and reading of epic and classical religious and narrative texts (e.g., Bhagavad Gita, Mokshadharma, Ramayana, Kathasaritsagara). Prereq: 422 or consent of instructor. 463-Continued reading of classical religious and narrative texts. Introduction to classical Sanskrit poetry (e.g., Kaisāda's Shākuntalahā or Māgadā. Prereq: 462 or consent of instructor.

469 Readings in Selected Languages Related to Religious Studies (1-3) Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

490 Readings and Research in Religious Studies (3) Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

499 Proseminar in Religious Studies (3) Selected figures, themes, and issues in a variable content. May be repeated. Maximum 6 hours.

RURAL SOCIOLOGY

380 Rural Sociology (3) Topics include cultural variability, reference group theory, social stratification, major social institutions, demographic changes, rural community and decision making, diffusion of technology and rural industrialization. Prereq: Sophomore standing. (Same as Sociology 380.)

480 Diffusion of Agricultural Technology (3) Diffusion and communication processes whereby new technol-
ogy spreads from scientists to change agents and finally to normal citizens. The decision-making process: communication, mass media, role of professional change agents, opinion leadership and consequences of technological change. Prereq: 380 or consent of instructor. (Same as Sociology 480.)

RUSSIAN

101-102 Elementary Russian (4.4) Must be taken in sequence.

201-202 Intermediate Russian (4.4) Must be taken in sequence.

221-222 Russian Literature in English Translation (3.3) Nineteenth and twentieth-century Russian literature. No foreign language credit. Writing-emphasis courses: at least one in-class essay examination and 3000 words of writing outside the classroom.

226 Russian Philosophical and Theological Thought (3) Development of philosophical and theological thought in Russia from the Middle Ages to the Revolution. Emphasis on exegesis of texts in thought in Russian literature and literary criticism. No knowledge of Russian required. Prereq: 221. Need not be taken in sequence. (Same as Russian and East European Studies 301-302.)

311-312 Russian Composition and Conversations (3.3) Practice in writing and speaking: grammar review and vocabulary building. Prereq: Completion of 226.

321 Works of Dostoievsky in English Translation (3) Crime and Punishment, Brothers Karamazov, and other works. (Same as Russian and East European Studies 321.)

322 Works of Tolstoy in English Translation (3) War and Peace, Anna Karenina, and other works. (Same as Russian and East European Studies 322.)

326 Special Topics in Russian Literature in English Translation (3) Topics vary and are announced in advance. Student suggestions for topics are welcome. No foreign language credit. May be repeated once. (Same as Russian and East European Studies 326.)

371-372 Background and Main Currents of Russian Culture (3.3) Historical and anthropological approach to the appreciation of the language, religion, literature, art, music, history, geography, and social problems of Russia. No knowledge of Russian required. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

401-402 Advanced Russian Grammar, Conversation and Composition (3.3) Prereq: 312 or equivalent. (Same as Russian and East European Studies 401-402.)

425 Introduction to Descriptive Linguistics (3) (Same as German 426, French 426, Spanish 426 and Linguistics 426.)

426 Introduction to Historical and Comparative Linguistics (3) (Same as German 426, French 426, Spanish 426 and Linguistics 426.)

451-452 Special Seminar (3.3) For majors in Russian: minors admitted at the discretion of the instructor. Intensive study of language, literary style, and literary criticism based on selected major works. (Same as Russian and East European Studies 451-452.)

491 Foreign Study (1-15)

493 Independent Study (1-15)

RUSSIAN AND EAST EUROPEAN STUDIES

301-302 Introduction to Russian Literature (3.3) (Same as Russian 301-302.)

321 Works of Dostoievsky in English Translation (3) (Same as Russian 321.)

322 Works of Tolstoy in English Translation (3) (Same as Russian 322.)

326 Special Topics in Russian Literature in English Translation (3) (Same as Russian 326.)

340-341 History of Russia (3,3) (Same as History 340-341.)

375 Geography of the Soviet Union (3) (Same as Geography 375.)

393 Marxism (3) (Same as Philosophy 393.)

401-402 Advanced Russian Grammar, Conversation and Composition (3.3) (Same as Russian 401-402.)

410 Selected Topics in Russian and East European Studies (3) Interdisciplinary seminar on a selected topic using a comparative approach. Requires research using Russian language sources, regardless of country, and a paper of 25-30 pages. Writing-emphasis course: a minimum of 3000 words of writing outside the classroom.

451-452 Special Seminar (3.3) (Same as Russian 451-452)

459 Government and Politics of the Soviet Union (3) (Same as Political Science 459.)

469 Soviet Foreign Policy (3) (Same as Political Science 469.)

SAFETY

400 Directed Independent Study (1-3) Individual identification and study of safety or safety education problem/issue. Specific proposal must be made to instructor before registration. May be repeated. Maximum 12 hours. Prereq: Consent of instructor.

441 Driver and Traffic Safety Education (3) 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. 2 hours and 2 labs.

442 Advanced Driver and Traffic Safety Education (3) Teaching driver education through use of simulation, multimedia, and multiple-car driving range. Emphasis placed on teaching skills and supervision. 2 hours and 2 Labs.

443 Sports and Recreational Safety (3) Accident prevention and injury control in sports activities; philosophy of sports safety; human environmental factors and interrelationship in sports injury and control; risk-taking and decision solution strategies; and contributions of sports medicine to safety. 3 hours and 2 labs.

452 General Safety (3) Principles, practices, and procedures in general safety. Safety problems in schools, traffic, recreation, industry, home, and other public areas.

470 Special Topics (1-3) Study in selected disciplinary or professional areas of safety. May be repeated. Maximum 12 hours.

SOCIAL WORK

200 Introduction to Social Work (3) Emergence of the social work profession; professional mission; knowledge, skills, and values; practice settings; client groups; helping services; career patterns; practice methods. Designed to assist students to consider their ability for careers in social work.

250 Social Welfare (3) Development, structure and function of the social welfare institution. Analysis of social welfare programs and impact of the institution on society.


314 Human Behavior and the Social Environment (3) Interrelationship of biological, social, cultural, environmental and psychological factors in human behavior. Person-in-environment over the life span with special attention to diversity, impact of racism, sexism, and other sociocultural factors. Integration of knowledge into a social work practice perspective. Prereq: Initial progression.


412 Social Work Practice III (3) Generalist practice with emphasis on groups and communities, including treatment theories, techniques, and issues. Prereq: Full progression. Coreq: 416 and 480.


450 Integrative Seminar (2) Social work content for entry-level professional practice and current issues influencing the profession. Includes development of professional portfolio reflecting BSW competencies. Prereq: Full progression. Coreq: 481.


491 Foreign Study (1-15) Prereq: Consent of instructor.

492 Off-Campus Study (1-15) Prereq: Consent of instructor.

493 Independent Study (1-15) Prereq: Consent of instructor.

SOCIOLOGY

100 General Sociology (3) Major concepts and theoretical approaches of the discipline, including socialization, social organization, and social stratification.

110 Social Problems and Social Change (3) Increasingly acute and intense problems such as alcoholism, violence, crime, inequality, life-style preferences, and environmental abuse within the context of social change. Assessment of control strategies. May be taken instead of 100.

200 Sociological Analysis (3) Selected set of contemporary issues emphasizing theoretical and logical structure of the issues and development of data needed to enter into informed debate on the issues. Students are expected to develop their own analytical arguments. Prereq: English 102 or consent of instructor.

220 Interpersonal Communication (3) (Same as Speech 220.)

232 Varieties of Religious Community (3) (Same as Religious Studies 232.)

251 Social Work Practice in American Society (3) (Same as Social Work Practice 251.)

291 Sport in American Society (3) (Same as Physical Education 291.)

310 American Society (3) Institutional organization of contemporary American society with particular atten-
tion to major social values. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

350 Criminology (3) Systemic inquiry into alternative definitions of crime, statistical distribution of different types of crime causation, and responses to crime, primarily by the police.


352 Deviance and Social Control (3) Deviants, their lifestyles, social organization, and social control.

360 Environment and Resources (3) Relationship between social and natural resources and changes in societal beliefs and social structure. Topics include social and physical limits to growth and collective action problems.

363 The City (3) The revolutionary impact of cities and city life as seen from an ecological perspective. The organization of life in cities into communities, neighborhoods, and other territories. Urban planning and problems.

370 Social Psychology (3) Social psychological analysis of social behavior emphasizing its acquisition, its enactment, and its dynamic nature.

375 Gender in Society (3) Exploration of gender in society utilizing various sociological perspectives with special focus on the relationship between social structures, social roles, and gender identities. (Same as Women's Studies 375).

380 Rural Sociology (3) (Same as Rural Sociology 480).

400 Special Topics (3) Variable topics. Scope of subject matter determined by student and instructor with consent of department. Prereq: Determined by department. May be repeated. Maximum 6 hours.

405 Sociology of Sport (3) Social meaning, organization, and participation in sport. Prereq: Permission of instructor. (Same as Physical Education 405).

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

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

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

446 The Modern World System (3) Critical examination of the capitalist world-system as a social system. Its coherence, boundaries, regions, member groups, cleavages, and patterns of conflict. Analysis of who gets what, why, and how in the global political economy. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

451 Criminal Justice (3) A critical assessment of the criminal justice apparatus and its components. Brief examination of the police, with most of the emphasis on the criminal courts and institutions and programs such as the prison, probation, and parole. Analysis of their operation and impacts. Prior completion of 350 is recommended.

455 Society and Law (3) How laws and legal processes are affected by social change, the social impact of legal sanctions, relations between law and social justice. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

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

462 Population (3) Demographic factors and social structures influencing population growth, migration, distribution, and composition; population policy.

464 Urban Ecology (3) The relation of humans to their urban environment with emphasis on conservation and the use of appropriate technology. (Same as Urban Studies 464.)

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

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

491 Foreign Study (1-15) Prereq: Advance departmental approval of number of hours and topics. May be repeated. Maximum 15 hours.

492 Off-Campus Study (1-15) Prereq: Advance departmental approval of number of hours and topics. May be repeated. Maximum 15 hours.

493 Independent Study (1-15) Prereq: Advance departmental approval of number of hours and topics. May be repeated. Maximum 15 hours.

SPANISH

111-112 Elementary Spanish (3,3) (Introduction to Spanish. May not be taken for credit by students with two years of high school or one year college Spanish. Must be taken in sequence. Language Laboratory required.

210 Intermediate Spanish Transition (3) A thorough study of the fundamentals of Spanish language for those who have completed two or more years of high school study but who are not eligible to take 211 due to the assumption that they are not prepared for the 211-212 sequence. Special emphasis on developing communicative proficiency in Spanish. The course will meet five hours per week and will not count toward the College of Liberal Arts foreign language requirement. For elective credit only.

211-212 Intermediate Spanish (3,3) Reading, writing, listening and speaking of Spanish to prepare for upper division courses in the language. Must be taken in sequence. Language Laboratory required. Prereq: 111-112 or equivalent.

217-218 Honors: Intermediate Spanish (3,3) 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. Classes normally held to a maximum of 15 students. Students follow enrichment program with continuing emphasis upon speaking ability and with an introduction to reading literary selections. Students earn an A in 217 and a B in 218 to receive credit for 300. Prereq: 111-112 or equivalent.

291 Spanish Literature in English Translation (3) From the Golden Age, Don Quixote, the picaresque novel, and St. John of the Cross, to the modern, Unamuno, Lorca, Ortega, and Cela. No foreign language or major credit. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

292 Spanish American Literature in English Translation (3) Contemporary Spanish American fiction such as Borges, Fuentes, Marquez, Asturias. No foreign language or major credit. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

300 Spanish Transition (3) Development of linguistic skills necessary for satisfactory work in courses above 300. Recommended for students who would benefit from additional training beyond 212 in the skills of speaking, reading and writing Spanish. Particular attention for preparation to read Hispanic literature and other advanced-level material.

311 Aspects of Spanish Literature (3) Introduction to Spanish literature, using selections from prose, drama and poetry of the medieval, Golden Age and modern periods. Required of all majors. Prereq: 212, 218 or equivalent.

312 Aspects of Spanish American Literature (3) Introduction to the study of Spanish American literature, with emphasis on contemporary works. Genres may vary. Prereq: 212, 218 or equivalent. (Same as Latin American Studies 312.)

323-324 Intermediate Conversation and Composi- tion (3,3) Designed to improve proficiency in oral and written communication in Spanish.

421 Phonetics (2) Prereq: 212, 218 or equivalent.

422 Advanced Grammar (3) Finer points of grammatical structures. Required of all majors. Native speakers must receive permission from the instructor to take this course. Prereq: 212, 218 or equivalent.

423-424 Advanced Conversation and Composition (3,3) Advanced conversational and written skills in Spanish for pre-professionals.

425 Introduction to Descriptive Linguistics (3) (Same as French 425, German 425, Russian 425 and Linguistics 425.)

426 Methods of Historical Linguistics (3) (Same as French 426, German 426 and Linguistics 426.)

429 Romance Linguistics (3) (Same as French 429 and Linguistics 429.)


261 Computing for Data Management and Analysis (3) Use of computer operating system commands and packaged programs for managing data files and statistical analysis. Prereq: 251. Sp


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

481 Applied Regression Analysis (3) Linear regression and correlation, multiple regression, polynomial regression, selection of variables, use of dummy variables, analysis of residuals. Logistic regression and its applications. Use of standard computer packages. Major writing requirement. Prereq: Six hours of statistics or consent of instructor. F, Sp

482 Analysis of Variance and Experimental Design (3) Variance techniques for single and multivariate models. Post hoc procedures. Design considerations for completely randomized, randomized block, factorial, hierarchical and split-plot experiments. Major writing requirement. Prereq: 252 or 461. Sp


481 Special Topics in Probability (1-3) Topics in probability and stochastic processes. Prereq: Consent of the instructor. May be repeated. Maximum 6 hours.

483 Special Topics in Statistics (1-3) Topics vary. Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

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

486 Undergraduate Seminar (1) Directed readings and active participation in the Department's undergraduate seminar program. Prereq: Senior standing and consent of Chairperson of the Statistics Department Undergraduate Affairs Committee. Satisfactory/No credit only. May be repeated. Maximum 2 hours.

492 Internship (1-8) Supervised off-campus experiences in applied statistics, roles and methods in business, industry, or government, culminating in a written and oral report. Prereq: Permission of the Chairperson of the Statistics Department Undergraduate Affairs Committee. Satisfactory/No credit only. May be repeated. Maximum 6 hours.

493 Independent Study (1-15) See description of major concentration.

497 Honors Thesis (6) Undergraduate thesis culminating in written report and oral defense. Prereq: Invitation of the Department Undergraduate Affairs Committee. Satisfactory/No credit only.

TECHNOLOGICAL AND ADULT EDUCATION

161 Graphic Communications (3) Drafting as a means of communication in technology. Orthographic and multiview drawing, conventional practices, pictorial techniques and applications, sheet metal development and auxiliary view drawings. Sketching, dimensioning, board work, CAD. F

163 Power and Energy Systems (3) Automotive technology and internal combustion engines. Includes various prime movers, methods of utilization, distribution, and transmission of power. Engine tune up and overhaul and small engine maintenance and repair is stressed through experimental and applied laboratory experiences. F

185 Woods Technology (3) Processes, tools, equipment, and products of the woodworking industry. Importance of safety and using hand tools and basic machinery. F

186 Metals Technology (3) Processes, equipment, and products of the metalworking industries. Processes in machine, Foundry, forging, heat treatment, sheet metal and fabrication. F

201 Field Experience in Vocational Technical Education (1) Field experience in public school programs in distributive education. May be repeated. Maximum 3 hours. Satisfactory/No Credit only. E

230 Typewriting and Shorthand Proficiency (3) Proficiency credit for students planning to certify in business education and office technology who have typewriting and/or shorthand courses. Prereq: Department approval. E

251 Architectural Graphics (3) Graphic representation and architecture. Principles of construction, working drawings for a residential dwelling, and CAD techniques. Prereq: 161 or consent of instructor. Sp

263 Basic Electricity/Electronics (3) Operation and characteristics of electrical systems and devices; includes general DC/AC theory and application, use of electronic measuring instruments, circuit analysis, introduction to semi-conductors and various laboratory experiences that involve the function of different types of circuits. Prereq: 163 or consent of instructor. Sp

265 Construction Technology (3) Residential construction, including site selection, foundations, framing, roofing, interior, and exterior finishes. Prereq: 165 or consent of instructor. Sp

266 Machine Tool Processes (3) Function, care, setup, operation and theory of basic machine tools. Prereq: 166 or consent of instructor. Sp

336 Micro Business Applications (3) Operating and programming microcomputers. BASIC language is used and programming examples are oriented in business applications. Prereq: Admission to Teacher Education Program. F

350 Related and Applied Theory in Occupations (1-15) Applicants must show evidence of bonafide occupational experience compatible with State Plan requirements. Written theory tests and the submission of a comprehensive portfolio are used to award variable credit. Measures evaluated by technical specialist and departmental faculty. May be repeated. Maximum 15 hours. Satisfactory/No Credit only. Prereq: Junior standing and departmental approval. E

351 Manipulative Skills in Occupations (1-15) Applicants must show evidence of bonafide occupational experience compatible with State Plan requirements. Written theory tests and the submission of a comprehensive portfolio are used to award variable credit. Measures evaluated by technical specialist and departmental faculty. May be repeated. Maximum 15 hours. Satisfactory/No Credit only. Prereq: Junior standing and departmental approval. E
352 Practicum in Industrial Education (1-3) Updating and upgrading experiences in non-traditional settings for technical teachers. May be repeated. Maximum of 6 hours. Satisfactory/No Credit only. E

354 Job Analysis Techniques and Curriculum Development (3) Instructional materials development utilizing the techniques of job analysis. F

355 Microcomputer Applications in Technology (3) Use and application of microcomputers for use in education and industry. Implications and impact of microcomputers on occupations and everyday living. Open lab for required hands-on experience in operation of microcomputer system. F

356 Lab Organization, Management, Maintenance, and Safety (3) Principles of classroom and laboratory organization, maintenance, safety, and management in vocational and technical laboratories. Sp

361 Graphic Reproduction Processes (3) Principles of printing, duplicating, photography, and other forms of graphic communication; includes laboratory experience in SLR camera applications, camera copy production, darkroom work, typography, layout, stripping, platemaking, and offset presswork. Prereq: Admission to Teacher Education Program. F

363 Applications of Integrated Electronics (3) Electrical circuit analysis and IC applications; including analysis of analog and digital circuits; operation and application of the basic principles and applications of digital electronics through lecture and laboratory experiments and exercises. Prereq: 356 or consent of instructor and admission to Teacher Education Program. F

365 Manufacture of Wood Products (3) Design and construction of case and carcass furniture and built-ins. Emphasizing use of wood as material. Prereq: 166. Sp

366 Manufacturing Technology (3) Manufacturing system, including researching and developing products, preparing to produce, producing, marketing, and servicing products. Prereq: 165, 166, and admission to Teacher Education Program. Sp

372 Job Analysis (3) Applied techniques of job analysis to determine job descriptions, training requirements, performance standards and sequence of training technical personnel. F

373 Instructional Techniques in Industrial Education (3) Application of general theories, motivational techniques, and instructional strategies to technical and related subjects. F

374 Planning Instruction for Human Resource Development (3) Selection, design, and development of performance-based training programs. Prereq: 372 or consent of instructor. F

401 Utilization of Community Resources (3) Strategies of developing linkages between vocational education and the private sector through advisory committees, councils and working partnerships, Development and management of public relations programs. Prereq: Three years of teaching experience. A

410 Pre-Student Teaching Seminar (1) Objectives and policies of the student teaching program. Must be completed the term immediately preceding student teaching. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only. F, Sp

413 Special Topics in Technological and Adult Education (3) Topics to be assigned. May be repeated. Maximum 6 hours. E

414 Individual Study in Technological and Adult Education (3) Prereq: Consent of supervising instructor with approval form filed in the office of the department head. May be repeated. Maximum 6 hours. E

415 Coordination Techniques (3) Necessary procedures, duties and responsibilities to implement, maintain, and evaluate a successful cooperative education program. A

420 Introduction to Adult Education (3) Breadth of adult education learning and the diversity of adult clients, including opportunities for professional practice apart from traditional instructional settings. A

421 Adult Education Program Design and Management (3) Processes of program design and special application to adult training programs. F

422 Adult Development and Training (3) Application of adult development concepts to design and management of training programs for adults. Sp

430 Principles and Organization of Business Marketing Education (3) Historical background and development of business marketing education, including business and marketing curriculum implications, establishing, evaluating, and improving the programs. Prereq: Admission to Teacher Education Program. F

431 Word Processing and Office Technology (3) Word processing concepts and applications, methodology for teaching word processing and machines. Prereq: Advanced typewriting skill and permission of instructor. Sp

432 Methods and Materials in Business and Marketing Education (3) teaching techniques, aids and evaluation in subject matter fields. Prereq: Admission to Teacher Education Program. Sp

433 Methods in Office Technology (3) Materials, evaluation procedures, and recent research in typewriting, shorthand, and other office procedures. F

434 Methods in Accounting and Data Processing (3) Methods, materials, evaluation procedures, and recent research in data processing. Automated accounting is introduced. Prereq: Admission to Teacher Education Program. F

436 Supervised Occupational Experience (3) Practical field experience in business and marketing settings under the supervision of practitioner and departmental representative. May be repeated to a maximum of 9 credits. E

439 Principles of Marketing (3) Marketing, personnel development, operations and management as these affect the instructional leadership program in marketing education. Sp

440 Special Topics in Business and Marketing Education (1-3) Topics to be assigned. May be repeated. Maximum 8 hours. E

450 Seminar in Industrial Education (1-3) Current issues, innovations, problems, and other topics associated with technical programs. May be repeated. Maximum 6 hours. E

454 Training Aids Development (3) Study and preparation of instructional aids and non-print media commonly used by technical instructors and trainers. F

455 Performance-Based Evaluation (3) Assessing the effectiveness of training through the development of performance standards and evaluation of incumbent worker job performance. Sp

456 Organization and Operation of VICA/HOSA (3) Planning, organizing and implementing youth-club activities in vocational-technical programs. A

459 New Developments in Industrial Education (3) Developments, significant problems and recent trends in industrial education presented by coordinating instructor in conjunction with knowledgeable resource personnel. May be repeated. Maximum 6 hours. E

464 Methods and Mediation in Technology Education (3) Methods and media used in teaching technology education in the secondary public schools. Prereq: Admission to Teacher Education Program. A

465 Materials and Processes (3) Materials relative to specifications, testing, and methods to classify and categorize materials. Determining correct processes to match industrial product needs. Prereq: Consent of instructor. F

466 Course Construction in Technology Education (3) Selection and implementation of instructional objectives, planning, instructional objectives, project/product selection, assignments and evaluation. Prereq: Admission to Teacher Education Program. F

469 Plastic Technology (3) Characteristics and applications of thermoplastic and thermosetting materials. Plastics production equipment related product design and processing of plastics. Prereq: 165 and admission to Teacher Education Program. A

470 Training for Human Resource Development (3) Organization and management of training, including roles and functions performed and the needs, costs, benefits, and productivity of training systems. Sp

471 Principles of Supervision (3) Problems of motivation, communication, interpersonal relationships and leadership. F

476 Internship in Human Resource Development (5-10) Assessing, planning, implementing, and evaluating the effectiveness of training programs in an industrial setting. Satisfactory/No Credit only. E

481 Student Teaching: Grades 7-12 and Adults (10) Full-time experience in classroom and laboratory teaching and related responsibilities under the direct supervision of a master teacher in the content area. Satisfactory/No Credit only. Prereq: Admission to Teacher Education Program. E

TEXTILES AND APPAREL

101 Apparel Construction (3) Garment construction focused on decision making and time management; pattern alterations, fitting and quality of construction. Not available for credit for departmental majors. F, Sp

120 Textiles I (3) Consumer-oriented textiles: fibers, fabric structure, garment construction and its relationship to user serviceability and care of apparel and household fabrics. E

230 Apparel Evaluation (3) Analysis of construction techniques to ascertain cost/quality relationships; elements and principles of design in relation to garment construction. Prereq: 123. F

232 Design Analysis (3) Apparel design analysis based on flat pattern, draping and drafting techniques; comparison of methods for style variations and costing of garments. Sp

310 Principles of Merchandising (3) Buying practices, procedures, problems, activities, techniques, underlying concepts fundamental to merchandising. Prereq: Accounting 201. F

320 Textiles II (3) Recent developments in fibers, fiber structure, yarn processing, yarn structure and fabric construction; dyeing, finishing and printing; textile performance and evaluation; legislation and standards. Prereq: 120, Chemistry 100-110 or 120-130. F

330 Apparel Production (3) Industrial methods in garment selection; factors associated with production, plant layout, costing and quality control. Prereq: 230. F


345 Fashion in History (3) Development of apparel styles in western civilization from middle ages to present; factors associated with origin, adoption, and abandonment including historic, social and economic settings. F

350 Consumers in the Market (3) Consumer decision-making and problems in the domestic and international marketplace; consumer issues and policies, emphasis on consumer choice, information, consumer protection and current issues. Prereq: Economics 201. Sp

390 Introduction to Field Experience (1) Interviews, placement and planning for field experience. Prereq: Approved application for field experience. Sp

410 Retail Management (3) Retail sector of economy from management perspective; decision-making in retail operations, promotion, pricing, freighter issues and policies, computer application, product mix-strategy. Prereq: 2 semesters Marketing. Sp

415 Fashion Promotion (3) Advertising and special purpose media used to promote fashion merchandise; evaluation of retail sales promotion activities. Sp
420 Textile Microscopy and Physical Testing (3) Microscopic techniques applied to textile fibers, yarns and fabric; standard methods and equipment used in physical testing. Prereq: 320. F

422 Textile Fiber Chemistry (3) Chemistry of textile fibers; emphasis on structure, preparation and reactions; implications relating to dyeing and finishing of fabric. Prereq: Chemistry 350. Sp

450 Textile and Apparel Economics (3) Economics of the United States textile, apparel and fiber industries; emphasis upon production, distribution, institutions, impact on consumer, international and domestic industries. Prereq: 350 or consent of instructor. Sp


492 Field Experience in Merchandising, Apparel or Textiles (8) Off-campus, cooperative program with business establishments which merchandise or manufacture textiles and/ or apparel. Prereq: 390. Coreq: 490. F

493 Directed Study (1-3) Individual problems for Junior and Senior students with special interests in textiles, merchandising or apparel. Prereq: Junior or Senior standing, consent of instructor. E

495 Special Topics (3) Topics in textiles, merchandising, and/ or apparel. May be repeated. Maximum of 9 hours. Prereq: Junior or Senior standing, consent of instructor. E

497-498 Honors: Textiles and Apparel (3) Individual problems for Junior and Seniors showing special ability and interest in textiles and apparel. Prereq: Recommendation of Department Head. E

THEATRE

100 Introduction to Theatre (3) Understanding theatre: thought, philosophy, aesthetics, and production practices. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

210-211 Survey of World Drama (3,3) 210-Includes Greek, Roman, Medieval, Elizabethan, and Eastern forms of drama. 211-Covers 19th century, as well as realism through contemporary drama. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

220-221 Acting (3,3) 220-Improvisations, theatre games, acting skills. 221-Use of acting skills in extensive scene work. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

226 Voice and Diction (3) Voice production; attention to individual speech problems.

245 Basic Stage Costuming (3) Costume design and construction; basic theory and technique. Production participation required. Prereq: 100.

250 Introduction to Scenery Technology (3) Techniques of scenery and stage properties construction. Production participation required.

260 Fundamentals of Lighting and Sound Production (3) Survey of practical information on electricity, physics, psychology, and installation of stage lighting and sound production. Emphasis on hands-on skills in lab. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

310-311 History of the Theatre (3,3) 310-Drama in performance with particular emphasis in theatre architecture, scene design, and acting styles Antiquity to Renaissance. 311-The European and modern theatres.

312-313 History of the American Theatre (3,3) Development of the theatre as a social institution in American life. 312-From its beginnings to 1900. 313-From 1900 to present. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

320 Advanced Acting (3) Special problems in contemporary roles. Prereq: 220-221 and consent of instructor.

340 Introduction to Costume Design (3) Development of research and rendering skills. Prereq: 245 or consent of instructor.

345 Costume Construction (3) Study and practice of skills in costume construction. Includes stitching, cutting, measurement, and crafts. Production participation is required.

355 Introduction to Scenic Design (3) Introduction to art and craft of scenic design.


380 Theatre Practicum: Production (1-3) Supervised work on departmental productions. Available for credit only to theatre majors or with consent of department. Prereq: Consent of instructor. May be repeated. Maximum 3 hours.

381 Theatre Practicum: Performance (1-3) Supervised work only to theatre majors or with consent of department. Prereq: Consent of instructor. May be repeated. Maximum 3 hours.

401 Principles of Theatrical Design (3) Fundamental principles of set design and related skills. Projects will be assigned to develop understanding and perception.

409 Stage Make-Up (2) Problems in make-up design and application, character analysis, physiognomy and chiaroscuro. Prereq: 100.

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

420 Textile Microscopy and Physical Testing (3) Mechanics of stage lighting design. Review of equipment and acoustical factors that affect sound production. Sound designs will be picked from selected plays. Final projects will be mixed, edited, and cued for production.

454 Scenery Painting (2) Introduction to materials, theory, philosophy, aesthetics, and production practice. Prereq: 250. Graduate credit available to theatre M.F.A. students only.

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

466 Advanced Lighting and Sound Technology (3) Projects in lighting and sound coordination. May include opera, dance, musical theatre, and "rock videos". Final projects will be live productions. Emphasis on developing artistic sensitivity and subtleties in control. Prereq: 260. F

467 Special Effects in Lighting and Sound (4) Projects in special effects including creative application of technology. Problem solving, drafting, and execution of effects for productions. Production participation required. Prereq: 260 or instructor's permission.

468 Advanced Lighting Design (3) Advanced problems in lighting design and theory including areas such as lighting musical theatre, opera, and dance. Prereq: 362 or consent of instructor.

469 Sound Design (3) Sound design for the performing arts. Review of equipment and acoustical factors that affect sound production. Sound designs will be picked from selected plays. Final projects will be mixed, edited, and cued for production.

470-471 Playwriting (3,3) Advanced instruction in the writing of plays. Prereq: Consent of instructor.

480 Theatre Practicum: Production (1-3) Continuation of 380. Prereq: Consent of instructor. For theatre majors only. May be repeated. Maximum 3 hours.

481 Theatre Practicum: Performance (1-3) Continuation of 381. Prereq: Consent of Instructor. For theatre majors only. May be repeated. Maximum 3 hours.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

UNIVERSITY HONORS

237, 337, 437 Honors: Concentration in the Humanities (3,3,3) Small group study of selected topics, issues or problems with a concentration in the humanistic disciplines. Open to all students with a GPA of 3.25 or greater. Topics vary. May be repeated.

247, 347, 447 Honors: Concentration in the Social Sciences (3,3,3) Small group study of selected topics, issues or problems with a concentration in the social sciences. Open to all students with a GPA of 3.25 or greater. Topics vary. May be repeated.

257, 357, 457 Honors: Concentration in the Natural and Applied Sciences (3,3,3) Small group study of selected topics, issues or problems with a concentration in the natural and applied sciences. Open to all students with a GPA of 3.25 or greater. Topics vary. May be repeated.

338-348 Tennessee Scholars Seminar (1,1) Sequence limited to and required of all Tennessee Scholars each year. May be repeated. Maximum 8 hours. Satisfactory/No Credit grading only.

491 Honors: Foreign Study (3-15) Open to any undergraduate honors student. Proposals must be approved in advance. See the Director of University Honors for further information.

492 Honors: Off-Campus Study (3-15) Open to any undergraduate honors student. Proposals must be approved in advance. See the Director of University Honors for further information.

493 Honors: Independent Study (3-15) Open to any undergraduate honors student. May be used by Tennessee Scholars preparing their senior projects. Proposals must be approved in advance. See the Director of University Honors for further information.
UNIVERSITY STUDIES

101 Freshman University Seminar (3) Introduction to university education as an adventure in personal growth and professional development. A/B/C/NC grading. Open only to freshmen, transfer students, and re-entry students, or by permission of instructor.
210-220 Case Studies (4,4) Variable content using case studies and problem-solving approaches to explore interdisciplinary issues. Includes a one-hour learning laboratory. Open only to students enrolled in a University Learning Community.
310-320 Special Topics in University Studies (3,3) Interdisciplinary approaches to issues transcending the boundaries of a single discipline. Topics may be initiated by faculty or students through arrangements with the University Studies Program. Taught by faculty from throughout the University (often team-taught). Extensive use of films, field trips, student discussion. May be repeated. Maximum: 9 hours.

URBAN STUDIES

200 Human-Environment Systems (3) (Same as Interior Design 200.)
250 Introduction to Urban Studies (3) Multidimensional nature of urban studies. Includes lectures by specialists presenting the approach of their disciplines to urban studies; application of general approaches to a specific issue; and collaborative teaching involving most faculty of Urban Studies.
321 Urban Politics and Process (3) (Same as Political Science 321.)
323 Behavioral Geography (3) (Same as Geography 323.)
350 Practicum in Urban Studies (3-4) Student and faculty member team, in conjunction with the East Tennessee Design Center, study a selected problem or aspect of the modern city.
401 The City in the United States (3) (Same as Planning 401.)
402 Survey of Planning (3) (Same as Planning 402.)
441 Urban Geography (3) (Same as Geography 441.)
450 Directed Field Work (3-15) Participant observation and directed field research. Project results are presented to Urban Studies students and faculty.
454 Cities and Urban American History (3) (Same as History 454.)
460 Senior Seminar (3) Variety of disciplines used to approach student selected problem. Prereq: 250, 350 and senior status. Students may not take 460 prior to having taken 450, except with prior permission of the Urban Studies Committee. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.
464 Urban Ecology (3) (Same as Sociology 464.)
481 Real Estate Finance and Investment Analysis (3) (Same as Finance 481.)
482 Urban Development and Finance (3) (Same as Finance 482.)

WILDLIFE AND FISHERIES SCIENCE

341 Law Enforcement and Public Relations (3) Fundamentals and general principles of local, state and federal laws and regulations governing natural resources and their management. Principles and practices of interacting with the public.
441 Wildlife and Fisheries Techniques (3) Capturing and handling fish and wildlife; population restoration; food habit sampling; wildlife damage control; marking techniques; fish culture systems; management plans; track and sign identification. Prereq: Forestry, Wildlife and Fisheries 317 or Biology 230.
443 Fisheries Science (3) Quantification and management of freshwater fisheries including population estimation, age and growth, biological assessment, and stocking. Prereq: Forestry, Wildlife and Fisheries 317 or Biology 230, and 6 hours of mathematics. 2 hours and 1 lab.
493 Independent Study in Wildlife and Fisheries Science (1-15) Special research or individual problem in wildlife and fisheries science.

WOMEN'S STUDIES

210 Images of Women in Literature: Biography and Autobiography (3) Introduction to women's journals, diaries, biographies and autobiographies. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.
215 Images of Women in Literature: Fiction, Poetry, Drama (3) Introduction to the study of women through the roles and stereotypes portrayed in a variety of literary genres (fiction, poetry, and drama), including works from diverse historical periods and cultures. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.
220 Women in Society (3) Role played by women in various societies during different historical periods, factors which have limited women's participation in society, social scientists' assumptions about women.
230 Marriage and Family: Roles and Relationships (3) (Same as Child and Family Studies 220.)
310 Emergence of the Modern American Woman (3) 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. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.
324 Women in French Culture (3) (Same as French 324.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.
330 Women in Music (3) (Same as Music History 330.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.
332 Women in American Literature (3) (Same as English 332.)
340 Women, Politics, and the Law (3) An examination of recent changes in the laws affecting women and a study of the role of women in contemporary American politics.
350 Women in Cross-Cultural Perspective (3) A study of the changing role of women in various contemporary cultures: industrial democracies, developing nations, communist countries. A team-taught course with guest lectures and slide presentations.
375 Gender in Society (3) (Same as Sociology 375.)
380 The Concept of Woman (3) (Same as Philosophy 380.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.
382 Philosophy of Feminism (3) (Same as Philosophy 382.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.
383 Women in the Greek and Roman World (3) (Same as Classics 383.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.
400 Topics in Women's Studies (3) Content varies. May be repeated.
410 Psychology of Sex Role Development (3)
422 Women Writers in England (3) (Same as English 422.)
425 Women's Health (3) (Same as Health 425.)
432 Women in European History (3) (Same as History 432.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.
434 Psychology of Gender (3) (Same as Psychology 434) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.
483 Afro-American Women in American Society (3) (Same as Afro-American Studies 483.)
493 Independent Study (1-15) Registration by consent of chair of Women's Studies.

ZOOLOGY

117-118 Honors: Fundamentals of Zoology (4,4) For superior students in any field; open in students with a minimum ACT composite score of 27 or a minimum college GPA of 3.2, or consent of instructor. Students not achieving at least a B in the first semester must complete the sequence with Biology 120. Must be taken in sequence. 117-Cellular processes, genetics, development, 116-Physiology, phylogeny, and ecology. 6 hours combined lecture and lab. May not receive credit toward 117-118 and Biology 110-120 or Botany 110-120.
210-220 Human Biology (3,3) For non-majors; not available as prerequisite or major credit in Zoology or Biology. May be taken out of sequence. 210-Diversity of life forms, uniqueness of humans, cell biology, genetics, reproduction, prenatal development. 220-Human physiology and ecology.
230 Human Physiology (5) Fundamentals of human physiology, primarily from the perspective of cellular and organismic interaction. Credit may not be applied toward Zoology major. Prereq: One year of college chemistry. 4 hours and one lab.
240 Human Anatomy (3) Gross and microanatomy of the human body. Credit may not be applied toward Zoology major. Prereq: One year of introductory biology or Zoology 230 or equivalent. 2 hours and 1 lab.
301 Special Topics (1-2) Topics of current interest. Consult departmental listing for topics offered. May be repeated but not one credit hour may be applied toward the Zoology major.
302 Zoology Colloquium (1) Weekly discussions of topics of contemporary interest. Intended for life sciences majors. Satisfactory/No Credit only. May be repeated but one 1 credit hour may be applied toward the Zoology major.
310 Bioethics (3) Relationships between biological discoveries and human values. Open discussions of selected dilemmas arising from new knowledge about evolution of behavior, genetics, reproduction, medicine, and environment.

322 Physiology of Reproduction and Lactation (3) (Same as Animal Science 322.)


331 Animal Development and Embryology Laboratory (2) Coreq: 330. 2 labs.

350 Comparative Vertebrate Biology (4) Origins, phylogeny, diversity and functional anatomy of vertebrates. Laboratory involves dissection of shark, cat, and selected other vertebrates. 2 hours and 2 labs.

360 Comparative Invertebrate Biology (4) Origins, phylogeny and functional anatomy of invertebrates with emphasis on diversity of life forms and adaptations to specific local environments. 2 hours and 2 labs.

370 Ethology and Sociobiology (3) (Same as Psychology 370.)

380 General Entomology (3) Introduction to insects: basic structure, physiology, behavior, evolution and classification of insect orders. 2 hours and 1 lab.

400 Undergraduate Research (2) Research projects under supervision of faculty. Prerequisite: Junior or senior standing and prior consent of instructor. May be repeated. Maximum of 4 hours may be applied toward the Zoology major.

402 Practicum in Zoology (2) Participation in individualized practical applications of zoology in community, government, and industry. Prerequisite: Biology 210, 220, 230 and prior consent of instructor.

403 General Genetics Laboratory (2) Experiments designed to illustrate basic principles of inheritance; primary organism used is Drosophila. Prerequisite: Biology 210. 220. 2 labs.

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

405-406 Minicourse in Zoology (1) Selected advanced topics in zoology, concentrated in time and subject matter. Consult departmental listing for topics offered. Prerequisite: As announced. May be repeated for credit but a maximum of 3 hours may be applied toward the Zoology major.

409 Perspectives in Zoology (2) Critical analysis of selected readings in biology. Prerequisite: Senior standing. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

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

415 Parasitology (3) Parasitic relationships: physiological, ecological, evolutionary and economic aspects. Prerequisite: Biology 230 or consent of instructor. 2 hours and 1 lab.

420 Cell and Tissue Structure and Function (4) Animal cells and tissues at light and electron microscope levels. Prerequisite: Biology 210. 2 hours and 2 labs.

430 Immunology (3) (Same as Microbiology 430.)

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


445 Comparative Animal Physiology (3) Comparison of diverse physiological mechanisms aiding in adaptation to particular habitats and lifestyles. Prerequisite: Biology 210, 220. 2 years of chemistry. Recommended: 230 or 440. 2 hours and 1 lab.

449 Laboratory in Physiology (2) Prerequisite or Corequisite: 440 or 445.

450 Comparative Animal Behavior (3) Principles and methods of ethology with emphasis on ecological, developmental, physiological and evolutionary aspects. Corequisite: 459. (Same as Psychology 450.)

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

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

465 Human Genetics (3) Genetic and molecular principles and problems of human inheritance. Prerequisite: Biology 220.

470 Aquatic Ecology (3) Introduction to the physicochemical nature of inland waters with description of biotic communities and their interrelationships. Prerequisite: Chemistry 120-130 and Biology 230. 2 hours and 1 lab.

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

473 Herpetology (3) Biology of amphibians and reptiles with emphasis on ecology and adaptive radiation. Prerequisite: Biology 230. 2 hours and 1 lab.

474 Ichthyology (3) Evolution, classification, collection and identification, distribution and biology of fishes with emphasis on freshwater fauna of Eastern North America. Prerequisite: Biology 230 or consent of instructor. 2 hours and 1 lab.

475 Ornithology (3) Behavior, ecology, populations, evolution and field identification of birds. Prerequisite: Biology 230 or equivalent. 2 hours and 1 lab.

476 Mammalogy (3) Evolution, classification, biogeography, ecology, behavior and functional anatomy of mammals. Prerequisite: Biology 230 or equivalent. 2 hours and 1 lab.

480 Physiology of Exercise (3) Functions of the body in muscular work: physiological aspects of fatigue, training and adaptation to the environment. Prerequisite: Biology 230 or 440. 2 hours and 1 lab.

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

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)
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