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

Admission Requirements — Director of Admissions

Course Offerings — Department offering course

Degree Requirements — Office of the Registrar, faculty adviser, head of major department, College Advising Center, or dean of college/school

Fees and Tuition — Office of the Treasurer

EEO/TITLE IX/SECTION 504 STATEMENT
The University of Tennessee, Knoxville does not discriminate on the basis of race, sex, color, religion, national origin, age, handicap, or veteran status in provision of educational opportunities or employment opportunities and benefits.

UTK does not discriminate on the basis of sex or handicap in the education programs and activities which it operates, pursuant to the requirements of Title IX of the Education Amendments of 1972, Pub. L. 92-318, and Section 504 of the Rehabilitation Act of 1973, Pub. L. 93-112, respectively. This policy extends to both employment by and admission to the University.

Inquiries concerning Title IX and Section 504 should be directed to the Office of the Vice Chancellor for Planning and Administration, 525 Andy Holt Tower, 974-4391. Charges of violation of the above policy should also be directed to the Office of the Vice Chancellor for Planning and Administration.
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## Academic Calendar for 1979-80

### Summer Quarter 1979
- **June 18**: Orientation (Transfer and Freshman)
- **June 19**: Registration, First or All Terms
- **June 20**: Classes Begin
- **July 4**: Independence Day (No Classes)
- **July 9**: Drop Deadline, First Term
- **July 20**: Classes End, First Term
- **July 19-23**: Registration, Second Term
- **July 24**: Classes Begin, Second Term
- **July 24**: Drop Deadline, Full Term
- **August 10**: Drop Deadline, Second Term
- **August 22**: Classes End
- **August 25**: Commencement

### Fall Quarter 1979
- **September 17**: Orientation (Transfer)
- **September 18**: Orientation (Freshman)
- **September 17-18**: Upperclass & Graduate Registration
- **September 18-19**: Freshman and Transfer Registration
- **September 20**: Classes Begin
- **October 24**: Drop Deadline
- **October 26**: East Tenn. Educ. Assoc. (No Classes)
- **November 3**: Homecoming (No Classes)
- **November 22-24**: Thanksgiving (No Classes)
- **November 29**: Classes End
- **November 30-December 4**: Alternative Period
- **December 7**: Commencement

### Winter Quarter 1980
- **January 3**: Orientation (Transfer & Freshman)
- **January 3-4**: Registration
- **January 7**: Classes Begin
- **February 11**: Drop Deadline
- **March 11**: Classes End
- **March 12-15**: Alternative Period
- **March 18**: Commencement

### Spring Quarter 1980
- **March 24**: Orientation (Transfer & Freshman)
- **March 24-25**: Registration
- **March 26**: Classes Begin
- **April 4-5**: Easter (No Classes)
- **April 29**: Drop Deadline
- **May 31**: Classes End
- **June 2-5**: Alternative Period
- **June 10**: Commencement
Academic Calendar for 1980-81

**Summer Quarter 1980**
- June 12: Orientation (Transfer and Freshman)
- June 13: Registration, First or All Terms
- June 16: Classes Begin
- July 3: Drop Deadline, First Term
- July 4: Independence Day (No Classes)
- July 18: Classes End, First Term
- July 16-18: Registration, Second Term
- July 21: Classes Begin, Second Term
- July 21: Drop Deadline, Full Term
- August 7: Drop Deadline, Second Term
- August 22: Classes End
- August 25: Commencement

**Fall Quarter 1980**
- September 22: Orientation (Transfer)
- September 23: Orientation (Freshman)
- September 22-23: Upperclass and Graduate Registration
- September 23-24: Freshman and Transfer Registration
- September 25: Classes Begin
- October 29: Drop Deadline
- October 31: East Tenn. Educ. Assoc. (No Classes)
to be announced: Homecoming (No Classes)
- November 27-29: Thanksgiving (No Classes)
- December 4: Classes End
- December 5-9: Alternative Period
- December 12: Commencement

**Winter Quarter 1981**
- January 5: Orientation (Transfer and Freshman)
- January 5-6: Registration
- January 7: Classes Begin
- February 10: Drop Deadline
- March 12: Classes End
- March 13-17: Alternative Period
- March 20: Commencement

**Spring Quarter 1981**
- March 25: Orientation
- March 25-26: Registration
- March 27: Classes Begin
- April 17-18: Easter
- April 30: Drop Deadline
- June 2: Classes End
- June 3-6: Alternative Period
- June 10: Commencement

**Dates**
- June 12: 1 2 3 4 5 6 7
- August 7: 1 2 3 4 5 6 7
- October 31: 1 2 3 4 5 6 7
- November 27-29: 1 2 3 4 5 6 7
- December 5-9: 1 2 3 4 5 6 7
Administrative Officers
Chancellor, Jack E. Reese, A.B., A.M., PH.D.
Assistant to the Chancellor, Donald R. Eastman III, A.B., PH.D.
Vice Chancellor for Academic Affairs, Walter R. Herndon, B.S., M.S., PH.D.
Associate Vice Chancellor for Academic Affairs, Hardy Liston, Jr., B.S., M.E.A.
Associate Vice Chancellor for Academic Affairs, Ralph V. Norman, Jr., A.B., B.D., M.A., PH.D.
Vice Chancellor for Business and Finance, Homer S. Fisher, B.S., M.B.A.
Vice Chancellor for Graduate Studies and Research, L. Evans Roth, A.B., M.S., PH.D.
Vice Chancellor for Planning and Administration, Luke Ebersole, A.B., A.M., PH.D.
Assistant Vice Chancellor for Planning and Administration, Betsey B. Creekmore, A.B., M.A., M.A.L.S.
Vice Chancellor for Student Affairs, Howard F. Aldmon, B.S., A.M., E.D.D.
Assistant Vice Chancellor for Student Affairs, James L. McAuliffe, B.A., M.S.

General Administrative Officers
Athletics, Director, George R. Woodruff, B.S.
Development, Director, Jack E. Williams, B.S.
Finance, Director, Harold B. Whitehead, B.S., CPA
Graduate Studies, Dean, Margaret N. Perry, B.S., M.S., PH.D.
Physical Plant, Director, John C. Parker, B.S.
Public Relations, Director, David H. Lauver, B.S.
Research, Dean, Carl O. Thomas, A.B., M.A., PH.D.

Student Affairs:
Admissions and Records, Dean, John J. McDow, B.S., M.S., PH.D.
Auxiliary Enterprises, Director, James L. McAuliffe, B.A., M.S.
Career Planning and Placement Service, Director, Howard H. Lumsden, B.S.
International Student and Cultural Affairs, Director, Dixon C. Johnson, B.S., M.A., PH.D.
Intercollegiate Athletics for Women, Director, Gloria S. Ray, B.S., M.S.
Student Activities, Dean, Philip A. Scheurer, B.A., M.S.
Student Conduct and Orientation, Dean, Charles R. Burchett, B.S., M.A.
Student Counseling Center and Special Services, Director, Richard L. Nash, B.A., M.S., E.D.D.
Student Health Service, Administrator, Fred E. Young, Jr., A.B., M.C.

Colleges and Schools
AT KNOXVILLE
Graduate School
Vice Chancellor for Graduate Studies and Research, L. Evans Roth, A.B. M.S., PH.D.

Institute of Agriculture
Dean, College of Agriculture, O. Glen Hall, B.S., M.S., PH.D.
Dean, College of Veterinary Medicine, Willis W. Armistead, D.V.M., M.S., PH.D.

School of Architecture
Dean, Donald D. Hanson, B.Arch., M.Arch.

College of Business Administration
Dean, C. Warren Neel, B.S., M.B.A., PH.D.

College of Communications
Dean, Donald G. Hileman, B.S., M.S., PH.D.

Division of Continuing Education
Dean, Joseph P. Goddard, B.S., M.S., E.D.D.

College of Education
Dean, William H. Coffield, B.S., M.A., PH.D.

School of Health, Physical Education, and Recreation
Director, Madge M. Phillips, B.S., M.S., PH.D.

College of Engineering
Dean, and Director of Engineering Experiment Station, Fred N. Peeples, B.S. in C.H.E., M.S., PH.D.

College of Home Economics
Dean, Lura M. Odland, B.S., M.S., PH.D., D.Sc.

College of Law
Dean, Kenneth L. Penegar, A.B., J.D., LL.M.

College of Liberal Arts
Dean, Robert G. Landen, B.A., M.A., PH.D.

School of Library and Information Science
Director, Ann E. Prentice, A.B., M.L.S., D.L.S.

College of Nursing
Dean, Sylvia E. Hart, B.S.N., M.S.N., PH.D.

School of Planning
Director, James A. Spencer, A.B., M.C.P.

School of Social Work
Dean, Ben P. Granger, B.A., M.P.A., M.S.W., PH.D.

Independent Departments
Air Force Reserve Officers' Training Corps
Professor of Air Science, James E. Hiteshew, B.G.E., M.A.E.D., Colonel, USAF

Army Reserve Officers' Training Corps
Professor of Military Science, Daniel H. Bauer, B.A., M.A., Colonel, USA

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

AT TULLAHOMA
Space Institute
Dean, Charles H. Weaver, B.S., M.S., PH.D.

Other Educational and Public Service Units
Division of International Education
Director, Dixon C. Johnson, B.S., M.A., PH.D.
Libraries
Director, Donald R. Hunt, B.A., M.A., M.A.L.S.
THE UNIVERSITY OF TENNESSEE BOARD OF TRUSTEES

Legal Title: The University of Tennessee

His Excellency, THE GOVERNOR OF TENNESSEE 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>
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<th>From Congressional Districts</th>
<th>District</th>
<th>Began</th>
<th>Term Expires</th>
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<td>Buford Goldstein, Elizabethton</td>
<td>First</td>
<td>1975</td>
<td>June 1, 1984</td>
</tr>
<tr>
<td>A. B. Long, Jr., Knoxville</td>
<td>Second</td>
<td>1977</td>
<td>June 1, 1986</td>
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<tr>
<td>Leonard Raulston, Lookout Mountain</td>
<td>Third</td>
<td>1957</td>
<td>July 1, 1979</td>
</tr>
<tr>
<td>William M. Johnson, Sparta</td>
<td>Fourth</td>
<td>1975</td>
<td>June 1, 1987</td>
</tr>
<tr>
<td>Amon Carter Evans, Nashville</td>
<td>Fifth</td>
<td>1975</td>
<td>June 1, 1982</td>
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<td>Clyde M. York, Columbia</td>
<td>Sixth</td>
<td>1953</td>
<td>July 1, 1981</td>
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<tr>
<td>Ben Douglass, Lexington</td>
<td>Seventh</td>
<td>1951</td>
<td>July 1, 1979</td>
</tr>
<tr>
<td>Tom Elam, Union City</td>
<td>Eighth</td>
<td>1956</td>
<td>June 1, 1986</td>
</tr>
<tr>
<td>R. Lee Winchester, Memphis</td>
<td>Ninth</td>
<td>1975</td>
<td>June 1, 1984</td>
</tr>
</tbody>
</table>

From Anderson, Bedford, Coffee, Franklin, Lincoln, Moore, and Warren Counties

Don O. Shadow 1970 June 1, 1979

From Davidson County
Elaine McReynolds 1975 June 1, 1984

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

From Knox County
Ann Baker Furrow 1971 June 1, 1980
Frank P. Bowyer 1959 June 1, 1980

From Shelby County
Harry W. Laughlin 1953 July 1, 1981
Marcus J. Stewart 1970 July 1, 1981

From Weakley County
Wayne Fisher 1953 July 1, 1981

Student Member
Anne M. Long 1978 July 1, 1979

Officers of the Board
.—, Chairman
Tom Elam, Vice Chairman
Edward J. Boling, President
Brodie Baynes, Treasurer
Beauchamp E. Brogan, Secretary
Carol Bailey, Assistant Secretary
Committees
The President is a member ex-officio of all standing committees.
Executive: York (Chairman), Fisher (Vice Chairman), Bowyer, Laughlin.
Finance and Business: Laughlin (Chairman), Johnson (Vice Chairman), Elam, Raulston.
Buildings and Grounds: Fisher (Chairman), Kinser (Vice Chairman), Douglass, Long, Winchester, York.
Academic Affairs: Furrow (Chairman), Elam (Vice Chairman), Bowyer, Brown, Fisher, Goldstein, student Trustee.
Agriculture: York (Chairman), Douglass (Vice Chairman), Fisher, Laughlin, Porter, Shadow, Stewart.
Athletics: Elam (Chairman), Furrow (Vice Chairman), Bowyer, Johnson, Raulston, York.
Development, Alumni Affairs, and Public Relations: Bowyer (Chairman), Goldstein (Vice Chairman), Elam, Evans, McReynolds, Raulston, Stewart, York, student Trustee.
Health Affairs: Stewart (Chairman), Bowyer (Vice Chairman), Evans, Furrow, Laughlin, Long, Winchester.
Student Affairs: Laughlin (Chairman), McReynolds (Vice Chairman), Fisher, Furrow, Ingram, Johnson, Long, Raulston, Shadow, student Trustee.
Public Service and Continuing Education: Raulston (Chairman), Evans, Kinser, Long, McReynolds, Stewart, Winchester.
Faculty and Staff Affairs: Douglass (Chairman), Shadow (Vice Chairman), Brown, Goldstein, Kinser, Long.

THE UNIVERSITY OF TENNESSEE
ADMINISTRATION AND SERVICE
President, Edward J. Boling, B.S., M.S., ED.D.
Executive Vice President and Vice President for Development, Joseph E. Johnson, A.B., A.M., ED.D.
Vice President for Academic Affairs, John W. Prados, B.S., M.S., PH.D.
Vice President for Agriculture, Webster Pendergrass, B.S.A., M.S., D.P.A.
Vice President for Business and Finance, Emerson H. Fly, B.S., CPA
Vice President for Continuing Education, Charles H. Weaver, B.S., M.S., PH.D.
Vice President for Health Affairs and Chancellor of the Center for the Health Sciences, T. Albert Farmer, Jr., B.S., M.D.
Vice President for Public Service and Chancellor, UT at Nashville, Charles E. Smith, B.S., A.M., PH.D.
General Counsel, Beauchamp E. Brogan, B.S., J.D.
Executive Assistant to the President, Andrew J. Kozar, B.S., A.M., PH.D.
Treasurer, Brodie Baynes, B.S., CPA

Emeriti Administrators:
Emeritus President, Andrew David Holt, A.B., M.S., LL.D., LITT.D., SC.D., PH.D.
Emeritus Vice President for Business and Finance, W. Harold Read, B.S., M.B.A., CPA
Emeritus Vice President for Academic Affairs, Kenneth L. Knickerbocker, A.B., A.M., PH.D.
Emeritus Vice President for Academic Affairs, Herman E. Spivey, A.B., A.M., PH.D.
The University

The University of Tennessee is a multi-campus, multi-purpose system of higher education encompassing all Tennessee. It is the state's official State University and Federal Land-Grant Institution—frequently called "the capstone of the state's educational system." The institution is owned and supported by the people of Tennessee. It also receives some federal support for certain programs sponsored cooperatively by the state and federal governments.

The central administrative staff consists of the president and seven vice presidents who have the responsibility of administering the affairs of the statewide educational organization. The five primary campuses are under the direct supervision of chancellors.

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

Instruction

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

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

Programs of Study

In student enrollments and the scope of its academic programs, The University of Tennessee ranks among the larger institutions of higher education in the United States. In the fall of 1978, a total of 49,485 students enrolled on the five campuses of The University of Tennessee System. This total included 29,720 enrolled at Knoxville and Centers; 2,152 at the Center for the Health Sciences (Memphis); 5,090 at Martin; 7,104 at Chattanooga; and 5,413 at Nashville.

To serve the academic needs of all these students, the University system offers 170 degree programs at the bachelor's level, 144 at the master's level, and 60 at the doctoral level. The degree programs offered by colleges and schools at the UT, Knoxville campus are described in this catalog. Degree programs offered by the Center for the Health Sciences (at Memphis) and at Martin, Chattanooga, and Nashville are described in special catalogs issued from those campuses.

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

Colleges and Schools

The University's academic programs consist of 28 colleges and schools which offer studies on five primary campuses at Knoxville, Memphis, Martin, Chattanooga, and Nashville. The Knoxville campus also offers programs at Oak Ridge, Tullahoma, Memphis, and Kingsport. These colleges and schools and other academic units are as follows:

UT, KNOXVILLE
Graduate School (offering programs leading to the master's or the doctor's degree)
College of Agriculture
School of Architecture
College of Business Administration
College of Communications
Division of Continuing Education
College of Education
School of Health, Physical Education, and Recreation
College of Engineering
College of Home Economics
College of Law
College of Liberal Arts
Graduate School of Library and Information Science
College of Nursing
Graduate School of Planning
Graduate School of Social Work
College of Veterinary Medicine
At Oak Ridge
Oak Ridge Graduate School of Biomedical Sciences
Oak Ridge Evening School
Oak Ridge Resident Graduate Program
At Tullahoma
Space Institute
At Kingsport
Graduate Center
At Chattanooga
Graduate Engineering Center
UT CENTER FOR THE HEALTH SCIENCES
At Memphis
College of Basic Medical Sciences
College of Community and Allied Health Professions
College of Dentistry
College of Medicine
College of Nursing
College of Pharmacy
Graduate School—Medical Sciences
Other academic units associated with the Center for the Health Sciences
At Knoxville
UT Memorial Research Center and Hospital
Clinical Education Center
The University of Tennessee, Knoxville

Main Campus

- A: Ayres Hall (Liberal Arts)
- AA: Art & Arch. (under construction)
- AC: Art Center
- ACH: Arts & Crafts House (Laurel House)
- AD: Holt Ave. Apartments
- AH: Alumni Hall (Alumni, Placement Offices)
- AHT: Andy Holt Tower
- AP: Austin Peay Memorial Bldg. (Psych.)
- APG: Administration Parking Garage
- AQG: Student Aquatic Center
- AX1: Art Annex 1
- AX2: Art Annex 2
- AX3: Art Annex 3
- BCC: Black Cultural Center
- BH: Berry Hall
- BL: Blount Hall
- BT: Tom Black Track and Recreation Area
- BU: Buehler Hall
- CA: CAH: Carrick Hall (Residence)
- CBT: Clarence Brown Proscenium Theatre
- CD: Communications Design (Riscos Hall)
- CER: Ceramics Bldg.
- CHL: Clement Hall (Residence)
- CN: College of Nursing
- COM: Communications and University Extension Bldg.
- CR: Craft House
- CT: Carousel Theatre
- CU: Credit Union
- DAB: Dabney Hall
- DES: Design House
- DO: Dougherty Engineering Bldg.
- DUH: Dunford Hall (Residence)
- ECO: Ecology
- EGH: East Stadium Hall
- EST: Estabrook Hall (Architecture)
- EMP: UT Employment Office
- F: Fraternity House
- FH: Ferris Hall
- PLC: Family Life Center
- G: Glocker Business Administration Bldg.
- G&G: Geology and Geography Bldg.
- GIB: Gibbs Hall (Residence)
- GH: Greve Hall (Residence)
- GSP: Graduate School of Planning
- GYM: Alumni Memorial Auditorium-Gymnasium
- H: Hester Biology Bldg.
- H&S: Hearing & Speech Center
- HE: Harris Home Economics Bldg.

Agricultural Campus

- AE: Agricultural Engineering Bldgs.
- AEL: Agricultural Engineering Lab
- ASB: C.E. Brehm Animal Sciences Bldg.
- CO: Corn-Cotton Bldg.
- CVM: College of Veterinary Medicine
- DP: Dairy Products Bldg.
- FL: Fiser Research Laboratory
- FOR: Tennessee Division of Forestry
- FT: J.H. McLeod Food Technology Bldg.
- GH: Greenhouses
- MG: McCord Hall
- MH: Morgan Hall
- PB: Pest Barn
- PO: Poultry Diagnostic Laboratory
- PPL: Ag. Campus Power Plant
- PSL: Ellington Hall-Plant Sciences
- PSE: Plant Sciences Annex
- SL: Spinning Lab.
determines the entrance requirements for students, prescribes and defines courses of study, establishes the requirements for degrees, determines rules for the academic guidance of students, and recommends to the administration the candidates for degrees who have completed prescribed courses of study.

**Extracurricular Opportunities**

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

**Research**

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

Funding of sponsored research at the University totaled more than $21.3 million in fiscal year 1978. This growth in the dollar value of grants and contracts parallels growth in the quality and diversity of research programs of importance to the Volunteer State and the entire nation. Increased crop yields, improved industrial processes, more effective medical services, and greater citizen understanding of our environment and our society are but a few of the benefits resulting from the practical applications of University research.

**Research Organizations**

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

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

**Extension and Public Service**

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

Agricultural Extension Service, specializing in agriculture and home economics, sponsored jointly by the U.S. Department of Agriculture. Agents to assist farmers and homemakers are stationed in every Tennessee county. District offices are maintained at Chattanooga, Cookeville, Jackson, Knoxville, and Maryville.

Division of Continuing Education, which serves in non-agricultural areas of education. The Division's statewide services are effected through its Center for Extended Learning, Head Start State Training Office, Library Services, Radio Services, Teaching Materials Center, and Television Services.

Division of Continuing Education, Knoxville, extends academic programs and services from UK to persons throughout the state through its Evening School, Off-Campus Credit Programs, Workshops and Non-Credit Programs, and Office of Conferences and Institutes. The Division utilizes services of the Statewide Division of Continuing Education and cooperates with all other campuses of the University in statewide extension activities.

Institute for Public Service, which provides a system-wide focal point for the University's programs in the fields of industry, government and urban development. Units of the Institute are the Municipal Technical Advisory Service, the County Technical Assistance Service, the Center for Government Training, the Center for Industrial Services, and the Technical Assistance Center. In addition, the Institute jointly supports with UT, Knoxville two specialized research and service units, the Environment Center and the Transportation Center.

Physical Facilities of the University

The University of Tennessee's physical plant—its land, buildings, and equipment—has a book value in excess of $438,908,500. A total of 168 major buildings, 39,496 acres of land, more than $67,000,000 worth of equipment, about $12,000,000 worth of books, and hundreds of small buildings and miscellaneous items constitute the physical plant.

The Knoxville campus is valued at approximately $177,706,000 and the Memorial Research Center and Hospital at $18,675,000. Facilities of the Center for the Health Sciences at Memphis are valued at approximately $58,178,000; the Martin campus, $39,454,000; the Chattanooga campus, $32,260,000; and the Nashville campus, $3,175,000. Facilities at the Tullahoma Space Institute are valued at $3,252,000. Experimental farms, livestock, and other facilities throughout the state have a value of $5,450,000.

Buildings on the main campus and agriculture campus at Knoxville are shown on the map printed in this catalog. A map of the state showing locations of the University's facilities and other physical facilities is located on page 12. Maps or aerial photographs showing buildings on the Center for the Health Sciences campus at Memphis and the Martin and Chattanooga campuses are printed in the catalogs issued by those units of the University.

Historical Background

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

With its founding as Blount College, the University is listed as one of the older institutions of higher education in the nation. Blount College had some unusual qualities. It was strictly sectarian in character, which was unique among institutions of higher education in that day. The institution has remained non-denominational to the present time and is said to be the oldest such institution west of the Appalachian Divide. Moreover, Blount College for a few years admitted women as students, thus becoming the first coeducational college in the United States, though it is probable these first coeds studied in a subcollegiate department. The institution later restricted enrollment to men, but reverted to its present coeducational status in 1892.

In 1807 the institution began to widen the scope of its service area. During that year the State Legislature changed the institution's name to "East Tennessee College" and made it the recipient of one-half of the proceeds of the sale of land set aside by Congress for the support of two colleges, one in East and the other in Middle Tennessee. In 1826 the present site at Knoxville, the 40-acre tract known as "The Hill," was acquired by East Tennessee College.

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

In 1869 East Tennessee University was selected by the State Legislature as Tennessee's Federal Land-Grant Institution, under terms of the Morrill Act passed by Congress in 1862. This selection meant the establishment of an Agricultural and Mechanical College as part of the University, supported by an endowment resulting from the sale of land warrants received by Tennessee from the federal government. Thus the efforts of the institution to launch students from a college to a true university were given a tremendous boost.

Ten years later, in 1879, East Tennessee University was chosen by the State Legislature as Tennessee's State University and its name was changed to "The University of Tennessee." By this act the University became pledged to the service and interest of the entire state, the head and an integral part of the public education system. By this act the state pledged to the University its own name and reputation and promised the institution a future in keeping with the prestige of the state.

Since its establishment, the University has grown into an institution consisting of 31 different colleges and schools, and it has become statewide in its physical locations as well as its services. The Center for the Health Sciences, founded in Nashville and taken over by the University in 1879, was moved to Memphis in 1911. The Martin campus was established in 1900 as a private institution, Hall-Moody Junior College, and it became a part of The University of Tennessee in 1927. The School of Social Work has been part of the University since 1951. A fourth primary campus was established at Chattanooga in 1969 with the merger of the University with the University of Chattanooga. In 1971 the University's Nashville Center, established in 1947, was made the fifth primary campus.

Down through the years Agricultural Experiment Stations were established at Jackson, Spring Hill (Columbia), Springfield, Lewisburg, Crossville, Wartburg, Oak Ridge, Greeneville, and Grand Junction. The system Division of Continuing Education coordinates all continuing education programs offered by the five primary campuses, and the Division of Continuing Education, Knoxville, conducts evening classes, conferences, and institutes for the Knoxville campus. The Agricultural Extension Service has district offices at Jackson, Nashville, Cookeville, Chattanooga, and Knoxville and has agricultural extension leaders and agents in every one of Tennessee's 95 counties.

In 1968 the Board of Trustees reorganized the institution into a university system, giving a central administrative staff responsibility for the entire statewide functions of the University and establishing chancellors on the primary campuses, responsible for their respective campuses.

State Legislatures and Governors of Tennessee, particularly those of the past half century, have shown an active interest in the development of The University of Tennessee. As a result, the University has been able to broaden and strengthen its programs to meet the educational and research needs of the people of Tennessee and has become one of the leading institutions of higher education in the nation—an institution with international prestige.
Academic Policies and Costs

Any and all course offerings, academic requirements, and other information contained in this publication are subject to change and/or revision without notice. See page 2 for sources of current information.

Admission to The University of Tennessee, Knoxville

Applications, credentials, and inquiries should be directed as follows:

For admission to all undergraduate programs, including the University Evening School and the College of Veterinary Medicine:

Director of Admissions
The University of Tennessee
Knoxville, Tennessee 37916
(615) 974-1317

For readmission of former undergraduates:

Director of Readmissions
The University of Tennessee
Knoxville, Tennessee 37916

For admission to the College of Law (see College of Law Bulletin for information on admission to the College of Law):

Dean, College of Law
The University of Tennessee
Knoxville, Tennessee 37916

For admission to the Graduate School (see Graduate Catalog for information on admission to the Graduate School):

Graduate School
The University of Tennessee
Knoxville, Tennessee 37916
(615) 974-3251

For admission to the Colleges of Basic Medical Sciences, Dentistry, Medicine, Nursing (except Knoxville College of Nursing), and Pharmacy, and programs in the allied health professions, administered by The University of Tennessee Center for Health Sciences in Memphis (see Health Sciences Catalog for information on admission to these colleges):

Director of Admissions
The University of Tennessee
Center for the Health Sciences
82 South Dunlap
Memphis, Tennessee 38103

Deadlines for Applications

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

Applications for the College of Veterinary Medicine must be received by the Director of Admissions by January 15 for admission into the fall quarter. Applications for the School of Architecture must be received no later than March 1 for admission to the summer and fall quarters. Selection will be made by April 1.

November 1 is the deadline for applications for the spring quarter; enrollment is closed for the winter quarter. Applications for the College of Nursing must be received by March 1. Selection will be made by April 1; enrollment is closed for the winter and spring quarters.

Former students who have been dropped from the University for academic deficiency reasons must apply for readmission to the Director of Readmissions no later than six weeks before the start of classes of the quarter the student wishes to enter.

Undergraduate Admissions Requirements

Applicants for undergraduate admissions to the University must meet the following:

1. general requirements as indicated below
2. requirements for the applicant's specific admissions category as shown in Table I, and
3. requirements of the academic college or school the applicant seeks to enter as shown in Table II.

ACADEMIC CREDENTIALS:

Freshman Applicants—Transcript of high school credits and score report of the American College Testing Program (ACT). These should be received at the University preferably in the fall of the senior year; a supplementary high school credit sheet of final senior grades should be sent after graduation.

ACT tests are administered five times each year, in October, December, February, April and July. Score reports must be sent directly from ACT to the University. Information concerning ACT may be obtained from high school guidance counselors or by writing American College Testing Programs, P.O. Box 168, Iowa City, Iowa 52240.

Transfer Applicants—Complete transcripts of all college work at each college or university attended.

EVIDENCE OF GOOD CHARACTER

Freshman Applicants—Recommendation of high school principal.

Transfer Applicants—Character report from college student personnel officer(s).

AMERICAN HISTORY

All Applicants—Effective July 1, 1978, and afterwards, all students receiving a bachelor's degree must have completed one unit of American history on the high school level or nine quarter hours of collegiate American history in order to receive a bachelor's degree as required by the General Assembly of the State of Tennessee.

Residency Classification

Students are classified as in-state or out-of-state for the purpose of determining fees and tuition on the basis of regulations established by the Board of Trustees. Basically, these regulations state that:

1. students receiving support from their parents are residents of the same state as their parents, and
2. students independent of parental support may establish Tennessee residency for fee purposes by producing evidence of domicile to the University's satisfaction, proving that they came to Tennessee for reasons other than obtaining an education for themselves or their spouses.

A student's residency classification for fee purposes also determines whether the student will be considered under in-state or out-of-state requirements. Children of alumni and scholarship recipients are admitted under the same requirements as in-state students, even though they may be required to pay out-of-state tuition. Inquiries concerning residency should be addressed to the Director of Admissions.

Residency classification may be appealed to the following University offices or persons in order as listed. (1) Respective Admissions Office—undergraduate students appeal to Admissions Office, 320 Student Services Building; graduate students appeal to Graduate Office, 115 Student Services Building; law students appeal to Law Admissions Office, 112 Law Building; veterinary medicine students appeal to Admissions Office, 320 Student Services Building; (2) Residency Classification Coordinator, 320 Student Services Building; and (3) Residency Classification Committee, 320 Student Services Building.

Admission to the University's professional programs (health professions [see p. 180], law, etc.) is becoming increasingly restricted to Tennessee residents. An out-of-state student completing a pre-professional program at The University of Tennessee, Knoxville does not gain preferential priority in admission to a professional program.

High School Subjects That May Be Offered

Group A

<table>
<thead>
<tr>
<th>Maximum Units</th>
<th>Maximum Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algebra</td>
<td>2.5</td>
</tr>
<tr>
<td>Art</td>
<td>3</td>
</tr>
<tr>
<td>Bible</td>
<td>1</td>
</tr>
<tr>
<td>Biology</td>
<td>1</td>
</tr>
<tr>
<td>Botany &amp; Zoology</td>
<td>2</td>
</tr>
<tr>
<td>Bookkeeping</td>
<td>1</td>
</tr>
<tr>
<td>Business Ethics</td>
<td>1</td>
</tr>
<tr>
<td>Chemistry</td>
<td>1</td>
</tr>
<tr>
<td>Civics</td>
<td>1</td>
</tr>
<tr>
<td>Commercial Law</td>
<td>1</td>
</tr>
<tr>
<td>Distributive</td>
<td>Music Harmony</td>
</tr>
<tr>
<td>Education</td>
<td>Musical Performance</td>
</tr>
<tr>
<td>Dramatics</td>
<td>1</td>
</tr>
<tr>
<td>Economics</td>
<td>1</td>
</tr>
<tr>
<td>English</td>
<td>4</td>
</tr>
<tr>
<td>French</td>
<td>4</td>
</tr>
<tr>
<td>Geography</td>
<td>1</td>
</tr>
<tr>
<td>Geology</td>
<td>1</td>
</tr>
<tr>
<td>Geometry</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Group B

<table>
<thead>
<tr>
<th>Maximum Units</th>
<th>Maximum Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>4</td>
</tr>
<tr>
<td>Distributive</td>
<td>2</td>
</tr>
<tr>
<td>Engineering</td>
<td>2</td>
</tr>
<tr>
<td>Drawing</td>
<td>2</td>
</tr>
<tr>
<td>Home Economics</td>
<td>4</td>
</tr>
<tr>
<td>Shopwork</td>
<td>2</td>
</tr>
</tbody>
</table>

Other subjects accepted for high school graduation, each field of study.
Units—Entrance requirements are stated in terms of units. A unit represents nine months of study in a subject in a secondary school, constituting approximately a quarter of a full year's work. A four-year secondary school curriculum should be regarded as representing 16 units of work as a minimum.

Unit Requirements—For admission 16 units, with high school graduation, are required as specified on the following pages. Graduates of Tennessee high schools must have taken at least four semesters of American history or take a comparable course during the first year in college, with college credit.

Unit Requirements for Individual Programs

A number of programs require specific high school units for admission beyond the general University admissions requirements. These are shown in Table II.

Unclassified Students. Students who meet University admissions requirements but do not meet the specific unit requirements of the program they seek to enter may be admitted as unclassified students. The assigned special advisers in the college they plan to enter. Students so admitted should remove entrance deficiencies as soon as possible, and in no event later than one year following enrollment. Students who have not removed entrance deficiencies by the start of their third year in college will not be allowed to continue at UT.

Special Requirements for International Students

In making application for admission to undergraduate study, each international student will be required to provide the following:

1. A completed application for undergraduate admission; and
2. Authenticated copies of all academic records. These records should describe the courses of instruction in terms of years spent in school and types of subject matter covered, with grades earned in each subject;
3. Evidence of English proficiency according to the following requirements for students whose first language is not English:
   a. Any applicant to the undergraduate program whose first language is not English—with the exception of some transfers from certain colleges or universities in the United States (see below)—must present a TOEFL score of at least 525 (earned within two years prior to application) before being admitted; final consideration cannot be granted until test results are received by the Director of Admissions. Then The University of Tennessee English Proficiency Test must be taken prior to registration; this test will determine whether the student needs to take more English and, if so, at what level. Students assigned to special English courses must enroll the first quarter of attendance, stay continuously enrolled in the assigned course, and complete all requirements, and complete the requirements within the first year for continued enrollment at The University of Tennessee, Knoxville.
   b. An undergraduate student whose first language is not English is exempted from taking the UTK English Proficiency Test and from presenting a TOEFL score of 525 provided that the student has satisfied the special requirements for freshmen composition with a grade of C or better at a college or university in the United States which is accredited by a regional association.
   c. A United States citizen or permanent resident whose first language is not English but who has graduated from a high school in the United States, or from its equivalent secondary school in a country whose first language is English, may be admitted under the conditions that apply to United States citizens whose first language is English. Any other United States citizen or permanent resident whose first language is not English must conform to the regulations stated in a above.
   A fee of ten dollars, in addition to regular tuition and fees, will be charged each applicant who takes The Univeres of Tennessee English Proficiency Test. The English Proficiency Test, which grants no credit, is to be distinguished from other forms of proficiency testing which do grant credit.

Advanced Standing by Examination

Students at The University of Tennessee, Knoxville may accelerate their programs through credit by examination. To receive such credit, a student must be regularly enrolled at the Knoxville campus.

ADVANCED PLACEMENT EXAMINATIONS

Students who satisfactorily pass Advanced Placement Examinations prepared and administered under the auspices of the College Entrance Examination Board and designated to receive credit in courses offered by the College of Liberal Arts on the basis of such tests. In each case the final decision as to whether or not credit is to be given on this basis rests with the department to which the student belongs.

PROFICIENCY EXAMINATIONS

Proficiency examinations may be given for any academic course offered for undergraduate credit and students may obtain the privilege of taking the examination on recommendation of the head of the department and approval of the Registrar. See additional discussion on page 28.

Faculty Advising

Once students are admitted, the University assigns responsibilities for their guidance and placement in order that they may secure the greatest benefit from their university work.

At registration each student is assigned to a member of the faculty, who acts as the student's adviser. The duties of the adviser are to assist the student in selecting subjects to ensure a well-rounded education, and to aid the student in interpreting the University's requirements. The responsibility for the selection of courses rests, in the final analysis, upon the student, and it is not the province of the adviser to refuse approval of a course which the student elects. Similarly, it is the full responsibility of all students to meet the requirements of their program in their proper order, so that they may not in the senior year find themselves ineligible for graduation. Each quarter one-third of the student body, designated alphabetically, is required to have an advising conference sometime within a four-week period early in the quarter. These students will be allowed to preregister for the ensuing quarter only upon presenting evidence of such a conference.

All beginning students, and former students whose grade point averages are below 2.00, must obtain approval of their course selections at registration.

The Colleges of Business, Administration, Education, and Liberal Arts have established advising centers where students may go any time for advice on academic matters.

The Student Counseling Center, 900 Volunteer Boulevard, is available to any student desiring help with individual or personal problems. Facilities are also available for improving reading skills and study habits. Students may go to the Center themselves or they may be referred by members of the faculty.

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 on the high school level or nine quarter hours of collegiate American history in order to receive a bachelor's degree as required by the General Assembly of the State of Tennessee (Tennessee Code Annotated 549-3253).

EEO/TITLE IX/SECTION 504 STATEMENT

The University of Tennessee, Knoxville does not discriminate on the basis of race, sex, color, religion, national origin, age, handicap, or veteran status in provision of educational opportunities or employment opportunities and benefits.

UTK does not discriminate on the basis of sex or handicap in the education programs and activities which it operates, pursuant to the requirements of Title IX of the Education Amendments of 1972, Pub. L. 92-318, and Section 504 of the Rehabilitation Act of 1973, Pub. L. 93-112; respectively. This policy extends to both employment by and admission to the University.

Inquiries concerning Title IX and Section 504 should be directed to the Office of the Vice Chancellor for Planning and Administration, 525 Andy Holt Tower, 974-4391. Charges of violation of the above policy should also be directed to the


<table>
<thead>
<tr>
<th>Admissions Category</th>
<th>Admissions Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
</tr>
<tr>
<td>In-State</td>
<td>Graduation from an approved high school; completion of all high school units required for the program student seeks to enter, as specified in Table II; applicants having neither a high school grade point average of at least 2.25 nor an ACT composite score of at least 17 will be assigned a special adviser. ACT score report is required for counseling and advisement.</td>
</tr>
<tr>
<td>Out-of-State</td>
<td>Same as for in-state freshman except that applicants from states in the region served by the Southern Association of Colleges and Schools, and from Arkansas, must have minimum high school grade point average at least 2.25 and ACT composite score at least 18. Applicants from other states must have high school grade point average at least 2.25 and ACT composite score at least 20.</td>
</tr>
<tr>
<td>GED</td>
<td>Applicant’s high school class must have graduated; must be at least 18 years old; average standard score of at least 50 on the high school level General Education Development Tests; completion of high school units required for the program student seeks to enter, as specified in Table II.</td>
</tr>
<tr>
<td><strong>FRESHMAN—EARLY ADMISSION</strong></td>
<td>Completion of junior year in high school; completion of high school units required for the program student seeks to enter; high school grade point average at least 3.50 and ACT scores at or above the 95th percentile for University of Tennessee freshman; nomination by the student’s high school principal and consent of parents; review and approval by the Director of Admissions.</td>
</tr>
<tr>
<td><strong>TRANSFER</strong></td>
<td></td>
</tr>
<tr>
<td>In-State</td>
<td>At least 12 hours of college credit work at an accredited institution of higher learning; honorable dismissal from all such institutions attended; grade point average on all college work attempted, at least the minimum that The University of Tennessee requires of its own students for readmission (see Undergraduate Retention Standards).</td>
</tr>
<tr>
<td>Out-of-State</td>
<td>Same as for in-state transfer applicants except that grade point average on all college work must be at least 2.00 to be eligible for consideration. Eligible students will be screened by the Committee on Admissions for final decision.</td>
</tr>
<tr>
<td><strong>SPECIAL STUDENT</strong></td>
<td>Applicant’s high school class must have graduated; may not be candidate for bachelor’s degree; must show satisfactory evidence of preparation for courses attempted. Special students may accumulate no more than 90 hours of college credit toward a degree (including any previous college work). To enroll in a degree program, a special student must meet transfer admissions requirements. Former University of Tennessee students may not be admitted as special students unless they have already earned a bachelor’s degree.</td>
</tr>
</tbody>
</table>

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1Grade point averages are expressed on a 4.00 scale.
2Applicants refused admission may appeal to the Committee on Admissions, Office of Admissions, 320 Student Services Building.
3See Special Requirements for International Students.
4Transfer applicants for the School of Architecture must have a college grade point average of 2.30. Transfer applicants for the College of Communications must have an average of at least 2.00. Transfer applicants who have attempted at least 30 quarter hours of college work must have grade point averages of at least 2.00 for admission to the College of Education, the College of Business Administration or the College of Home Economics.
<table>
<thead>
<tr>
<th>College/Degree Sought</th>
<th>English</th>
<th>One Foreign Language</th>
<th>Algebra</th>
<th>Trigonometry</th>
<th>Geometry</th>
<th>Advanced Math or Trigonometry</th>
<th>Science or Humanities</th>
<th>Minimum Group A Units</th>
<th>Total Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLLEGE OF AGRICULTURE Bachelor of Science in Agriculture</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>Bachelor of Science in Forestry</td>
<td>3</td>
<td>2</td>
<td></td>
<td>.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>Bachelor of Science in Agricultural Engineering</td>
<td>3</td>
<td>2</td>
<td>.5</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>SCHOOL OF ARCHITECTURE Bachelor of Architecture</td>
<td>3</td>
<td>2</td>
<td>.5</td>
<td>1</td>
<td></td>
<td>4.5</td>
<td></td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

Remarks
- A second unit of algebra may be offered in lieu of geometry.

 These units allow admission to first-year pre-architectural program. Admission to the second year requires: (1) satisfactory completion of first year architectural program with grade point average at least 2.3, exceptions may be made by petition only, (2) a personal interview and evaluation of applicant's work by a designated member of the School of Architecture, (3) application to the School of Architecture no later than June 15 preceding the start of the second year.

- A unit of advanced mathematics or trigonometry may be offered in lieu of the second unit of algebra or the unit of geometry.

- A second unit of algebra may be offered in lieu of geometry.

- Three units of science, including physics, are recommended.

- A second unit of algebra may be offered in lieu of geometry. See College of Liberal Arts section, page 179, for discussion of language requirements.

- A second unit of algebra may be offered in lieu of geometry; a unit of history or social science is required.

- A second unit of algebra may be offered in lieu of geometry.

- A second unit of algebra may be offered in lieu of geometry. One unit of chemistry is recommended.
### MAJORS, MINORS, CONCENTRATIONS AND TRACKS

<table>
<thead>
<tr>
<th>DEPARTMENT (UNIT)</th>
<th>MAJOR</th>
<th>CONCENTRATION/OPTION/TRACK/ETC. WITHIN THE MAJOR</th>
<th>DEGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Institute of Agriculture</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>College of Agriculture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture (Interdepartmental Unit)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural Biology</td>
<td>Agricultural Business</td>
<td>Bachelor of Science in Agriculture</td>
<td></td>
</tr>
<tr>
<td>Agricultural Economics and Rural Sociology</td>
<td>Agricultural Economics and Rural Sociology</td>
<td>Bachelor of Science in Agriculture</td>
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</tr>
<tr>
<td>Agricultural Education (Intercollegiate program with the College of Education)</td>
<td>Agricultural Education</td>
<td>Bachelor of Science in Agriculture</td>
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</tr>
<tr>
<td>Agricultural Engineering</td>
<td>Agricultural Engineering</td>
<td>Bachelor of Science in Agricultural Engineering</td>
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</tr>
<tr>
<td>Agricultural Mechanization</td>
<td>a. Business and Industry Option</td>
<td>Bachelor of Science in Agriculture</td>
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</tr>
<tr>
<td></td>
<td>b. Production and Processing Option</td>
<td>Bachelor of Science in Agriculture</td>
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</tr>
<tr>
<td>Agricultural Extension Education</td>
<td>Animal Science</td>
<td>Animal Science</td>
<td>Bachelor of Science in Agriculture</td>
</tr>
<tr>
<td></td>
<td>1. Animal Science</td>
<td>Bachelor of Science in Agriculture</td>
<td></td>
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<tr>
<td></td>
<td>2. Pre-Veterinary Medicine Option</td>
<td>Bachelor of Science in Agriculture</td>
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</tr>
<tr>
<td></td>
<td>3. Animal Science Curriculum with a Pre-Veterinary Option (3-1)</td>
<td>Bachelor of Science in Agriculture</td>
<td></td>
</tr>
<tr>
<td>Food Technology and Science</td>
<td>Food Technology and Science</td>
<td>Bachelor of Science in Agriculture</td>
<td></td>
</tr>
<tr>
<td>Forestry, Wildlife and Fisheries</td>
<td>Forestry</td>
<td>1. Forest Resource Management Option</td>
<td>Bachelor of Science in Forestry</td>
</tr>
<tr>
<td></td>
<td>Wildlife and Fisheries Science</td>
<td>2. Forest Recreation Option</td>
<td>Bachelor of Science in Forestry</td>
</tr>
<tr>
<td>Ornamental Horticulture and Landscape Design</td>
<td>Ornamental Horticulture and Landscape Design</td>
<td>Bachelor of Science in Agriculture</td>
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</tr>
<tr>
<td>Plant and Soil Science</td>
<td>Plant and Soil Science</td>
<td>Bachelor of Science in Agriculture</td>
<td></td>
</tr>
<tr>
<td><strong>Institute of Agriculture</strong></td>
<td>Veterinary Medicine</td>
<td>Doctor of Veterinary Medicine</td>
<td></td>
</tr>
<tr>
<td><strong>College of Veterinary Medicine</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Animal Science—Veterinary Medicine</td>
<td></td>
<td></td>
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<tr>
<td>Environmental Practice</td>
<td></td>
<td></td>
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<tr>
<td>Microbiology—Veterinary Medicine</td>
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<tr>
<td>Pathobiology</td>
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<tr>
<td>Rural Practice</td>
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<tr>
<td>Urban Practice</td>
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<td></td>
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</tr>
<tr>
<td>Veterinary Medicine (Interdepartmental Unit)</td>
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<td></td>
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</tr>
<tr>
<td><strong>School of Architecture</strong></td>
<td>Architecture</td>
<td>Design Concentration</td>
<td>Bachelor of Architecture</td>
</tr>
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¹Certificate available for two year secretarial program.
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<tr>
<td>Food Science, Nutrition, and Food Systems Administration</td>
<td>Food Science, Nutrition, and Food Systems Administration</td>
<td>1. Food Science</td>
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<td></td>
<td></td>
<td>2. Nutrition Science</td>
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<td>3. Community Nutrition</td>
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<td></td>
<td>4. Coordinated Undergraduate Program in Dietetics (ADA)</td>
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<td>5. Tourism, Food and Lodging</td>
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<tr>
<td></td>
<td></td>
<td>Administration</td>
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<tr>
<td></td>
<td></td>
<td>a. Plan A</td>
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<td></td>
<td></td>
<td>b. Plan B</td>
<td></td>
</tr>
</tbody>
</table>

¹Minor available.
²Minor available: Driver and Traffic Safety Education.
³Minors available: Dance, Coaching.
<table>
<thead>
<tr>
<th>DEPARTMENT (UNIT)</th>
<th>MAJOR</th>
<th>CONCENTRATION/OPTION/TRACK / ETC. WITHIN THE MAJOR</th>
<th>DEGREE</th>
</tr>
</thead>
</table>
| Interior Design and Housing    | Crafts, Interior Design, and Housing† | 1. General Professional  
2. Professional Interior Design  
3. General Crafts                                           | Bachelor of Science in Home Economics                                              |
| Home Economics Education       | Vocational Home Economics Education    | 1. Food Services Endorsement  
2. Child Care and Guidance Endorsement  
3. Clothing Management, Production and Services Endorsement | Bachelor of Science in Home Economics                                              |
| (Intercollegiate)              |                                        |                                                                                         |                                            |
| Textiles and Clothing          | Textiles and Clothing                  | 1. Merchandising  
2. Textile Technology                                             | Bachelor of Science in Home Economics                                              |
| College of Law                 | Law                                    | Dual J.D.—M.B.A. Degree Program                                                          | Doctor of Jurisprudence                  |
| College of Liberal Arts        | Anthropology*                          | Cultural Anthropology                                                                  | Bachelor of Arts                          |
| Anthropology                    | Physical Anthropology                  |                                                                                         |                                            |
| Art                             | Art                                    | Studio                                                                                  | Bachelor of Arts                          |
| Cold                           | Art History                            |                                                                                         | Bachelor of Arts                          |
| Biochemistry*                   | Biology*                               | 1. Concentration in Cell Biology  
2. Concentration in Organismal and Systems Biology | Bachelor of Arts                          |
| Botany                          | Botany*                                |                                                                                         | Bachelor of Arts                          |
| Chemistry                       | Chemistry*                             | Concentration A  
Concentration B                                                             | Bachelor of Arts                          |
| Classics                        | Greek*                                 |                                                                                         | Bachelor of Arts                          |
| Computer Science                | Computer Science*                      |                                                                                         | Bachelor of Arts                          |
| Cultural Studies†               | Cultural Studies                       | American Studies  
Asian Studies*  
Black Studies*  
Comparative Literature*  
Ancient Mediterranean Civilizations  
Latin American Studies*  
Linguistics*  
Medieval Studies*  
Russian and East European Studies  
a. Track I  
b. Track II  
Urban Studies* | Bachelor of Arts                          |
| Economics                       | Economics*                             |                                                                                         | Bachelor of Arts                          |
| English                         | English*                               | 1. Concentration in Literature  
2. Concentration in Creative Writing  
3. Concentration in English Language  
4. Individualized Program  
5. Honors Program | Bachelor of Arts                          |
| Geography                       | Geography*                             | 1. Cultural Geography  
2. Economic Geography  
3. Physical Geography  
4. Regional Geography | Bachelor of Arts                          |
| Geological Sciences             | Geology*                               |                                                                                         | Bachelor of Arts                          |
| Germanic and Slavic Languages   | German*                                |                                                                                         | Bachelor of Arts                          |
| Russian*                        |                                                                                         |                                            |                                            |
| History                         | History*                               | Honors in History                                                                       | Bachelor of Arts                          |
| Honors Program                  |                                        |                                                                                         |                                            |
| Human Services                 | Human Services*                        |                                                                                         | Bachelor of Arts                          |

†Program under revision.  
*Minor available.  
‡Minor available in Women’s Studies.
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<tr>
<th>DEPARTMENT (UNIT)</th>
<th>MAJOR</th>
<th>CONCENTRATION/OPTION/TRACK/ ETC. WITHIN THE MAJOR</th>
<th>DEGREE</th>
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<td>Honors Program in Mathematics</td>
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<td></td>
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<td>Program 1</td>
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<td>Program 2</td>
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<td>Music History and Literature*</td>
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<td>Applied Music</td>
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<td></td>
<td></td>
<td>a. Multiple Woodwind Instruments</td>
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<td>b. Organ</td>
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<td>c. Organ and Church Music</td>
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<td>d. Piano</td>
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<td>e. Strings</td>
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<td>f. Voice</td>
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<td></td>
<td>g. Woodwind, Brass, and Percussion Instruments</td>
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<td>h. Studio Music and Jazz</td>
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<td>Composition</td>
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<td>Music Theory</td>
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<td>Psychology*</td>
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<td>Pre-Professional Programs</td>
<td>Pre-Dental</td>
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<td>Pre-Pharmacy</td>
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<td>Pre-Dental Hygiene</td>
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<td>Pre-Histotechnology</td>
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<td>Pre-Medical Records</td>
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<td>Religious Studies*</td>
<td>Basic Option</td>
<td>Bachelor of Arts</td>
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<td></td>
<td></td>
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<tr>
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<td>Italian*</td>
<td></td>
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<td>Spanish*</td>
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<tr>
<td>Sociology</td>
<td>Sociology*</td>
<td></td>
<td>Bachelor of Arts</td>
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<tr>
<td>Speech and Theatre</td>
<td>Speech and Theatre</td>
<td>Concentration in Speech*</td>
<td>Bachelor of Arts</td>
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<tr>
<td></td>
<td></td>
<td>Concentration in Theatre*</td>
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<td>Concentration in General Speech</td>
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<td>Liberal Arts</td>
<td>Statistics*</td>
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<td>Intracollegiate</td>
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<td>(Intercollegiate with the</td>
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<tr>
<td>College of Business</td>
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<tr>
<td>Administration)</td>
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<td>College Scholars Program</td>
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<td>Graduate School of Library and</td>
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<tr>
<td>Information Science</td>
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</tr>
</tbody>
</table>

*Minor available.
*Minor available in Portuguese.
*Minor available to students in the College of Education and the College of Liberal Arts.
Office of the Vice Chancellor for Planning and Administration.

ELDERLY AND DISABLED PERSONS

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

FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT

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

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

SOCIAL SECURITY NUMBER USE

The University of Tennessee, Knoxville requires assignment of an individual student number for internal identification of each student's record. The University began using a security number as the student identification number prior to January 1, 1975; therefore, the federal law allows continued use of this number. However, if a student does not desire the social security number to be used, notification to the University must be made at the time of application for admission; a student identification number will be assigned instead. For prompt and accurate retrieval of records and for conducting business about their own records, students and alumni must give their student identification number.

Student identification numbers, whether a social security number or an assigned number, are used administratively within the University only and are not given to third parties without expressed consent of the student.

STATE BOARD OF EDUCATION

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

General Academic Regulations

Credit Hours, Grades, and Grade Point Average

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

Undergraduate students are graded on the following scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Performance</th>
<th>Quality Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Superior</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>Good</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>Average</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>Below Average</td>
<td>1</td>
</tr>
<tr>
<td>F</td>
<td>Failure</td>
<td>0</td>
</tr>
</tbody>
</table>

TEMPORARY GRADES

A student receiving a grade of I or SI should arrange with the teacher to take whatever action is needed to remove the grade at the earliest possible date, and in any event, within two years after the course was attempted. A student need not be enrolled at the University to remove a temporary grade.

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

SI (Incomplete) is assigned when the work is satisfactory but when a portion of the course is not completed. The grade is awarded only in courses where S/NC grading has been elected. The grade of SI for incomplete work will be recorded as an SI, which is not computed in the average.

GRADES THAT DO NOT INFLUENCE GRADE POINT AVERAGE

The grades of N, NG, P, and W carry no quality points, but hours on which these grades are earned are not counted in computing a student's grade point average. Hence these grades have no effect on 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.

SI (Incomplete) is assigned in S/NC graded courses only. See below.

W (withdrawal) is assigned in courses from which a student is officially withdrawn. Regulations concerning withdrawal from courses or from the University appear in the following section of this catalog, entitled "Changes in Registration."

SATISFACTORY/NO CREDIT GRADING SYSTEM

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

REPEATING COURSES

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

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

A - (4 quality points per quarter hour); indicates superior work.
B+ - (3.5 quality points per quarter hour); indicates above satisfactory work.
B - (3 quality points per quarter hour); indicates satisfactory work.
C+ - (2.5 quality points per quarter hour); indicates performance less than expected.
C - (2 quality points per quarter hour); indicates work of borderline quality. This grade represents work below the standard expected of graduate students.

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

SI (Incomplete) is assigned in S/NC graded courses only. See below.

W (withdrawal) is assigned in courses from which a student is officially withdrawn. Regulations concerning withdrawal from courses or from the University appear in the following section of this catalog, entitled "Changes in Registration."
FRESHMAN ENGLISH
English 1010, 1020, 1031-32-33, 1018-
28-38, 1211, 1221, 1431, 1441 and 1451 are
offered on a system of A, B, C, I, NC, W
grading.

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

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 to register upon receipt of their Admission Status. Former
students who have been absent from UTK other than the summer term and students
who have withdrawn from the previous
quarter will receive registration
information with their letter of
readmission. Law students should consult the
Admissions Office, College of Law.
Students enrolled in that college and in
the College of Veterinary Medicine will be
governed by the University's registration
date changes unless specified differently
by the college.

REQUIREMENTS FOR REGISTRATION OF
ADMITTED STUDENTS
Medical students. Though a physical
examination is not required, a Medical
History Questionnaire is sent to all
admitted students and must be completed by the student, parent or other
responsible party who is familiar with the
student's medical history. Such
information will facilitate University
physicians in providing continuing health
care. This form must be returned to the
Student Health Service before enrollment.

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

FIRST CLASS MEETING
Students who fail to attend the first
class meeting without prior arrangement with the department may be dropped from
the course to make their spaces available
to other students. Students have the
responsibility to assure that they have
been dropped, replace the drop slip for a
grade of "F" in the course.

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

Changes in Registration
Mid-Term is an announced date
midway between the beginning and
ending days of classes each quarter or
session (35 calendar days after the
beginning of classes, except for summer
sessions). Prior to mid-term
undergraduate students may withdraw
from courses as specified below. A course may be added without departmental
permission through the seventh calendar
day counted from the beginning of
classes. Due to the nature of some
courses, permission of the department head or course instructor is required.
Change of section within a given course must be made in accordance with
departmental policy and in all instances no
later than seven calendar days counted
from the beginning of classes. Students have the responsibility to process
section changes. Otherwise proper credit
may not be received after classes begin.
All change of sections must be approved
by the department head or the
instructor of the course. The student wishes to enter.
All official withdrawals from the
University are made through the Office of
Special Services. All requests for
admission of students who leave the University prior to the completion of a quarter report their
withdrawal to this office.

Withdrawals from University before Mid-Term (35 calendar days). If an
undergraduate student officially withdraws from the University before mid-term (for
summer quarter drop deadlines, see summer quarter timetable), the grade of W will
be recorded in all courses in which the
student is currently enrolled. In cases of withdrawal prior to mid-term, the Office of
Special Services will verify the date of withdrawal to the Registrar, who will then
inform the instructors that the grade in those
courses is automatically W.

Graduate students should consult the
Graduate Catalog for regulations concerning withdrawal from the University.

Dropping Courses before Mid-Term (35
calendar days). A course may be dropped with a W (withdrawal) before mid-term (for
summer quarter drop deadlines, see summer quarter timetable). A drop form
must be executed by the student and
submitted to the Registrar. Prior to mid-

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

Law students are graded on a
numerical scale from 0.0 to 4.0. Quality
points per quarter hour of credit in a given
course are equal to the numerical grade
received in the course. Grades of 0.5 and
below count as failures. Some courses are
graded on an S/NC basis.

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

The University
term neither the instructor’s nor the advisor’s permission is required. Students are permitted to drop a course through the fifth calendar day counted from the beginning of classes without any notation on the academic record.

Graduate students should consult the Graduate Catalog for regulations concerning the dropping of courses.

Dropping Courses or Withdrawing from the University after Mid-Term (55 calendar days). An undergraduate or graduate student withdrawing from a course, or from the University, after 35 calendar days from the start of classes will receive the grade of F unless it can be demonstrated that the request for withdrawal is based on circumstances beyond the student’s control. Examples of circumstances beyond the student’s control are illness or injury of the student (verified by the Student Health Service or private physician), or necessary change in work schedule occurring after the drop deadline (verified by the student’s employer). Examples of circumstances which are within the student’s control and which would not be acceptable to grant withdrawal permission are improper registration on the part of the student, or failure to achieve academically.

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

<table>
<thead>
<tr>
<th>Course Numbers</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000-0999</td>
<td>Non-credit; preparatory</td>
</tr>
<tr>
<td>1000-2999</td>
<td>Lower division—primarily for freshmen and sophomores</td>
</tr>
<tr>
<td>3000-4999</td>
<td>Upper division—primarily for juniors and seniors; usually available for graduate credit; when taken for graduate credit, the letter “G” will precede the course credit hours on the grade report</td>
</tr>
<tr>
<td>5000-5999</td>
<td>Graduate; sometimes available for undergraduate credit; when taken for undergraduate credit, the letter “U” will precede the course credit hours on the grade report</td>
</tr>
<tr>
<td>6000-6999</td>
<td>Advanced graduate; open to graduate students only</td>
</tr>
<tr>
<td>8000-8999</td>
<td>Law; occasionally open to other qualified students</td>
</tr>
</tbody>
</table>

Veterinary Medicine.

To be eligible for upper-division work a student must have attained junior (third-year) status, as defined in the following section, unless approval is granted by the dean of the student’s college. This rule applies to transfers, as well as those who have previously attended the University. A cumulative grade point average of at least 2.00 is required to begin upper-division work.

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

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

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

Honors Courses
Courses specifically designated as honors courses will be designated “Hon.” Individuals selected on the basis of ACT scores and previous academic performance may be enrolled. There is no limit on the number of credits that may be earned in these courses except in the senior readings courses not requiring regular class attendance; these senior readings courses may total not more than nine hours credit toward graduation. (In the fields of science offering four-hour courses the total may be twelve hours.) There is also a professional education honors course open to a limited number of freshmen entering in any college.

Auditors
Students registered for credit courses may enter classes as auditors, subject to the approval of the instructor whose class is visited. Auditors are under no obligation of regular attendance, preparation, recitation, or examination. They receive no credit. They may not take part in class discussion or laboratory or field work.

Students not registered for credit courses may be admitted as auditors only with the consent of the Director of Admissions; they are required to register, pay the fees for auditors, and to have class cards for the courses they elect to attend.

Minimum Class Size
An undergraduate course will not be given for fewer than five students except by permission of the Vice Chancellor for Academic Affairs.

Classification of Students

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Architecture</th>
<th>Engineering</th>
<th>All Other Undergraduate Programs</th>
<th>Law</th>
<th>Veterinary Medicine</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>0-47.9</td>
<td>0-44.9</td>
<td>0-44.9</td>
<td>0-36.9</td>
<td>0-57.9</td>
</tr>
<tr>
<td>Second</td>
<td>48-95.9</td>
<td>45-89.9</td>
<td>45-89.9</td>
<td>40-84.9</td>
<td>58-85.9</td>
</tr>
<tr>
<td>Third</td>
<td>96-143.9</td>
<td>90-134.9</td>
<td>90-134.9</td>
<td>85-up</td>
<td>86-up</td>
</tr>
<tr>
<td>Fourth</td>
<td>144-191.9</td>
<td>135-179.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fifth</td>
<td>192-up</td>
<td>180-up</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Undergraduate Retention Standards
To be eligible to continue at The University of Tennessee, Knoxville an undergraduate student must maintain a cumulative grade point average at or above the minimum acceptable level shown in the chart below. There are additional restrictions in individual programs, such as nursing and architecture, and the appropriate section of this catalog should be consulted.

<table>
<thead>
<tr>
<th>Total Quarter Hours</th>
<th>Minimum Acceptable Grade Point Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-35.9</td>
<td>1.00</td>
</tr>
<tr>
<td>36-83.9</td>
<td>1.50</td>
</tr>
<tr>
<td>84 and above</td>
<td>2.00</td>
</tr>
</tbody>
</table>

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

A transfer student who has been conditionally admitted and fails to meet the regular University standards of retention during the probationary quarter, or any subsequent quarter before attaining good standing, will result in the student’s being dropped from the University and being ineligible to make application for readmission.

Readmission
A student in good academic standing who has withdrawn from school or has been absent for a quarter other than the summer quarter must make application for readmission. A student who has been dropped academically must make application for readmission. Readmission is not automatic. Application must be made at least six weeks before registration. The Committee on Readmissions may approve or refuse the application for readmission. Students are strongly encouraged to
schools within the University have special requirements above and beyond those stated here, and students are advised to consult the description 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. Curricular requirements change frequently, and students should note the caution on the second page of this catalog. A student is allowed to satisfy requirements for a bachelor's degree under any curriculum in effect during the student's attendance at the University, as long as the student enrolls at UT Knoxville provided the curriculum has been in effect within 10 years of the date of graduation. This does not obligate the University to offer a discontinued course. Other sets of requirements may only be approved upon approval of a student's faculty adviser and college dean, in consultation with the Registrar's Office. A student who transfers to UTK subsequent to prior enrollment at a community college, junior college, or another senior institution may elect the UTK catalog in effect at the time of enrollment at the other institution provided that the student enrolls at UTK within one year after the last period of study at the institution from which the student is transferring.

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

3. Maintain a grade point average of at least 2.00 on all work attempted at The University of Tennessee. A 2.00 average is obtained by having two quality points for each quarter hour attempted, not including hours for which grades of NC, S, and W have been received.

4. Maintain a grade point average of at least 2.00 on the last 45 hours (last three quarters as a minimum) of work at The University of Tennessee. A 2.00 average is obtained by having two quality points for each quarter hour attempted, not including hours for which grades of NC, S, and W have been received.

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

6. Complete the last 45 hours of credit offered for the bachelor's degree in residence at The University of Tennessee, Knoxville. In the College of Agriculture at least 27 quarter hours of upper-division technical agriculture approved by the student's faculty adviser must be completed at The University of Tennessee, Knoxville. Work taken for credit through the University's Continuing Education programs in courses presented by the faculty of the Knoxville campus may be counted toward the degree, with the exception of the correspondence credit limitation noted below. 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.

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

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

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

10. File an application for a degree with the Office for the Registrar, Room 209 Student Services Building, no later than six weeks before the date of graduation.

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 requirements.

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

2. Complete at least 45 quarter hours beyond the first bachelor's degree.

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

Seniors Eligible for Graduate Credit

A senior at The University of Tennessee, Knoxville who needs 45 quarter hours or less to complete the requirements for a bachelor's degree, and has at least a 3.0 grade point average, may take sufficient work for graduate credit to fill out a schedule of 15 hours of combined undergraduate and graduate work. Maintain a grade point average of at least 2.00 on the last 45 hours (last three quarters as a minimum) of work at The University of Tennessee. A 2.00 grade point average is obtained by having two quality points for each quarter hour attempted, not including hours for which grades of NC, S, and W have been received.

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

2. Complete the last 45 hours of credit offered for the bachelor's degree in residence at The University of Tennessee, Knoxville. In the College of Agriculture at least 27 quarter hours of upper-division technical agriculture approved by the student's faculty adviser must be completed at The University of Tennessee, Knoxville. Work taken for credit through the University's Continuing Education programs in courses presented by the faculty of the Knoxville campus may be counted toward the degree, with the exception of the correspondence credit limitation noted below. 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.

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 recognized by the College of Law or—except by prior permission—by the Center for the Health Sciences.

All courses taken by correspondence for which degree credit is given must meet degree program requirements of the Knoxville campus. Degree credit will not be granted for correspondence courses taken at an institution other than The University of Tennessee by a UTK student if an equivalent correspondence course is available from the University of Tennessee Correspondence program.

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

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

Proficiency Examination

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

When applying to a department for a proficiency examination, a student should present evidence of having developed the abilities, knowledge, and attitudes expected of those who have taken the course in question. The giving of the examination must be approved by the head of the department in which the course is offered. A fee of $10.00 per course will be paid in advance at the Office of the Registrar.

Subject to the grading policy of the college in which the student is enrolled, and except for courses which are graded only on an S/NC basis, a student who passes a proficiency examination and who wishes to have the grade recorded can choose to take the grade on the examination (A, B, 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 examinations 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. The regular proficiency examination fee of $10.00 is charged. However, no credit for any English courses is awarded through this special examination.

CLEP Credit

When approved by a given department, nationally recognized examinations, such as the appropriate subject examinations of the College Level Examination Program (CLEP) of the College Entrance Examination Board, may be used as proficiency examinations in one or more courses offered by that department. In such cases the final decision as to whether or not credit is to be given on this basis rests with the department awarding credit, as does the determination of the number of credit hours and the specific courses for which such examinations are to be taken as evidence of acceptable proficiency. The University will charge a fee of $5.00 for the evaluation of such an examination.

CLEP CREDIT FOR FRESHMAN COMPOSITION

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

a) Students entering with a CLEP score of at least 650 on the General or 65 on the Subject Examination (approximately 93rd percentile) and with ACT scores of 25, English and Composite, may take a sophomore English course, preferably Literature of the Western World. If they earn an A in it, they will receive credit for 1010-20-31 with a grade of A; if they earn a B in sophomore English, their grade in 1010-20-31 will be either B or C.

b) Students entering with a CLEP score of 600 at least on the General or 60 on the Subject Examination (approximately 84th percentile) and with ACT scores of 25, English and Composite, may take Honors Freshman Composition 1038. If they earn an A in it, they will receive credit for 1018-28 with a grade of A. If they earn a B in 1038, their grade in 1018-28 will be either S or B.

II. Students transferring into the University with lower-division credit for any CLEP composition score of at least 550 or 65 may have that credit substituted for the appropriate freshman course(s) provided that they have already passed a sophomore literature course or courses with an average grade of at least B, and that those with less than junior standing pass a sophomore or upper-division English course at the University with a grade of at least B.

Honors Categories for Graduation

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

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

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

If, at graduation, a student's cumulative grade point average would allow a higher honors category than that determined at the end of the quarter preceding the graduation quarter, the student may, upon written request, receive a substitute diploma indicating the higher category.

Accelerated Program

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

Advanced Military Science 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.

Degrees

AT KNOXVILLE

Graduate School

Doctor of Business Administration.
Doctor of Education.
Doctor of Philosophy.
Specialist in Education.
Master of Accountancy.
Master of Arts.
Master of Arts in College Teaching.
Master of Business Administration.
Master of Engineering.
Master of Fine Arts.
Master of Mathematics.
Master of Music.
Master of Nursing.
Master of Public Administration.
Master of Public Health.
Master of Science.
Master of Science in Library Science.
Master of Science in Planning.
Master of Science in Social Work.

College of Agriculture

Bachelor of Science in Agriculture.
Bachelor of Science in Agricultural Engineering.
Bachelor of Science in Forestry.
Bachelor of Science in Wildlife and Fisheries Science.
School of Architecture
Bachelor of Architecture.

College of Business Administration
Bachelor of Science in Business Administration.

College of Communications
Bachelor of Science in Communications.

College of Education
Bachelor of Science in Education.

School of Health, Physical Education and Recreation
Bachelor of Science in Education.

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

College of Home Economics
Bachelor of Science in Home Economics.

College of Law
Doctor of Jurisprudence.

College of Liberal Arts
Bachelor of Arts.
Bachelor of Fine Arts.
Bachelor of Music.
Bachelor of Science in Chemistry.

College of Nursing
Bachelor of Science in Nursing.

College of Veterinary Medicine
Doctor of Veterinary Medicine.

CENTER FOR THE HEALTH SCIENCES
(See CHS Bulletin)

Graduate School—Medical Sciences
Doctor of Philosophy.
Master of Science.
Master of Science in Forensic Toxicology.

College of Medicine
Doctor of Medicine.

College of Dentistry
Doctor of Dental Surgery.
Master of Science in Orthodontics.
Master of Science in Pedodontics.

College of Pharmacy
Bachelor of Science in Pharmacy.
Doctor of Pharmacy.

College of Nursing
Bachelor of Science in Nursing.
Master of Science in Nursing.

College of Community and Allied Health Professions
Bachelor of Science in Cytotechnology.
Bachelor of Science in Dental Hygiene.
Bachelor of Science in Medical Records Administration.
Bachelor of Science in Medical Technology.
Bachelor of Science in Physical Therapy.
Bachelor of Science in Radiological Technology.

AT CHATTANOOGA
(See Bulletin of UT at Chattanooga)
Bachelor of Arts.
Bachelor of Music.
Bachelor of Science.
Bachelor of Science in Engineering.
Bachelor of Science in Nursing.
Bachelor of Business Administration.
Master of Education.
Master of Science.
Master of Science in Engineering.

AT MARTIN
(See Bulletin of UT at Martin)
Associate of Arts in Nursing.
Bachelor of Arts.
Bachelor of Science.
Bachelor of Science in Agriculture.
Bachelor of Science in Business Administration.
Bachelor of Science in Chemistry.
Bachelor of Science in Criminal Justice.
Bachelor of Science in Education.
Bachelor of Science in Engineering Technology.
Bachelor of Science in Home Economics.
Bachelor of Science in Natural Resources Management.
Bachelor of Science in Nursing.
Master of Science in Education.
Master of Science in Home Economics.
Master of Business Administration.
Master of Accountancy.

AT NASHVILLE
(See Bulletin of UT at Nashville)
Associate of Science in Fire Science.
Associate of Science in Nursing.
Associate of Science in Office Administration.
Bachelor of Arts in Arts and Sciences.
Bachelor of Science in Arts and Sciences.
Bachelor of Science in Business Administration.
Bachelor of Science in Education.
Bachelor of Science in Engineering.
Bachelor of Science in Nursing.
Master of Business Administration.
Master of Public Administration (joint TSU-UTN degree).

Fees and Expenses

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

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

Student Hospitalization and Medical Insurance. The University makes available, by contract with an insurance company, group hospitalization insurance expressly for students. Changes in the group plan may be authorized by the University after annual review depending on prevailing hospital costs in the Knoxville area. As would be expected with a large student group, individual coverage is in force for the individual student obtained. Students are urged to avail themselves of this insurance, or other comparably adequate insurance, since the 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 insurance program remains open for a designated period after classes begin. Students wishing to avail themselves of this insurance after arriving on the campus may obtain the application from the Office of Student Health Services. Whether application is made from the home or from the campus, the student applies directly with the Knoxville agent of the insurance company. Enrollment in insurance is not a part of registration for classes.

NOTE: Some family policies do not cover the dependent child after the sixteenth birthday. The family hospitalization insurance policy should be reviewed from this aspect.

Military Deposits. All students registering for Air Science and members of the band are required to make a deposit of $35.00 each to cover damage or loss of property issued to them. The unused portion of the deposits will be returned to the students after completion of training.

Identification Cards. ID cards, issued to all students, are prepared during registration of the first quarter a student enrolls in the University and are validated quarterly thereafter. These cards are required for many purposes such as use of library facilities, check cashing facilities in the UTK Bookstore, and admission to various athletic, social, and cultural events. These cards are nontransferable and may not be duplicated.

IDENTIFICATION CARDS MUST BE CARRIED AT ALL TIMES FOR PURPOSES OF IDENTIFICATION. Lost or stolen cards should be replaced by contacting the Student ID Card Office at Room 344, University Center. There is a minimum charge for replacement or duplicate ID cards.

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

University Fees

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:

MAINTENANCE FEE
Undergraduate Students Per Quarter $150.00
Graduate and Law Students Per Quarter $160.00

TUTION (additional for all-out-of-state students) Per Quarter $312.00

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

**Undergraduate Students:**
- **In-State:** $17.00 per quarter hour or fraction thereof; minimum charge $51.00
- **Out-of-State:** $40.00 per quarter hour or fraction thereof; minimum charge $120.00

**Graduate and Law Students:**
- **In-State:** $23.00 per quarter hour or fraction thereof; minimum charge $69.00
- **Out-of-State:** $54.00 per quarter hour or fraction thereof; minimum charge $162.00

**UNIVERSITY PROGRAMS AND SERVICES FEE**
Per Quarter $20.00

All undergraduate and graduate students taking in excess of six quarter hours per quarter will be assessed a University Programs and Services Fee of $20.00 per quarter for the fall, winter, and spring quarters and $15.00 for the summer quarter. Part-time students taking eight quarter hours or less will be assessed at the rate of $1.00 per quarter hour or fraction thereof (minimum charge $3.00) but are not entitled to admission to general activities programs. This fee is non-refundable.

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

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

Students enrolled exclusively at Oak Ridge and Kingsport Graduate Centers are exempt from the University Programs and Services Fee.

**Activities cards are nontransferable and may not be duplicated.**

**MUSIC FEE**
- One half-hour lesson per week, per quarter: $20.00
- One hour lesson per week, per quarter: $40.00
- Payable by eligible full-time students receiving individual instruction in music.

**GRADUATION FEE**
- Bachelor’s Degree: $10.00
- Master’s Degree: $16.00
- Doctoral Degree (except J.D.): $41.00
- Payable at the beginning of the quarter in which the candidate is to be graduated. This fee is nonrefundable and is valid for only four quarters beginning the quarter it is paid.

**DELA YED REGISTRATION SERVICE FEE**

**Graduated Late Service Fee**
Upon receipt of a schedule (full, partial, or incomplete) a student is immediately responsible for payment of fees. Students who preregister for a quarter may pay their fees (or make satisfactory arrangements with the Treasurer’s Office) on the regular registration dates. Effective the first regular business day following the last regular registration day a graduated late service fee of $2.00 per day will be charged during the next ensuing five regular business days. Students who do not preregister but register through the “secondary” registration procedures will be granted two additional days after the final regular registration date to pay their fees before the graduated late service fee begins. Such students will be charged the graduated late service fee beginning with the third regular business day following the last regular registration date. (Minimum charge $6.00; third day, $8.00 fourth day, $10.00 fifth day.)

**Additional Late Service Fees**
All students who have not completed registration and paid their appropriate charges (or made satisfactory arrangements with the Treasurer’s Office) within five regular business days after the last regular registration day will be charged an additional $10.00 late service fee (total $20.00).

This $10.00 service fee is applicable to extension accounts and room and board charges which are not paid (or for which satisfactory arrangements have not been made) within five regular business days after the date payment was due.

Students who have not completed registration and/or paid their appropriate charges (or made satisfactory arrangements with the Treasurer’s Office) within ten regular business days after the last regular registration day will be charged a second additional $10.00 late service fee (total $30.00) and may, at the discretion of the University, be automatically withdrawn from school and assessed the appropriate fees as of the date dropped. Only under extenuating circumstances will a student be reinstated after withdrawal for failure to pay fees.

**REINSTATEMENT SERVICE FEE**
$10.00

A student withdrawn (or subject to withdrawal) for the above reason (or any other reason) who is reinstated for the quarter will be charged a $10.00 reinstatement service fee.

**RETURN CHECK SERVICE FEE POLICY**
In the event a check given to the University in payment of initial fees and charges fails to clear the bank, the late registration service fee in effect at the time the check is redeemed (or suitable arrangements made) will be assessed, plus a $10.00 Return Check Service Fee (maximum $30.00).

- If the student responds promptly to the first notice regarding the returned check but cannot return the check within one week, the $3.00 Delayed Payment Service Fee will be added to the Late Registration and Return Check Fee (maximum $33.00).
- Any student who does not respond promptly and is thereby subject to withdrawal from the University will be assessed the $10.00 Reinstatement Service Fee and the $3.00 Delayed Payment Service Fee (maximum $43.00).
- For other student checks in the amount of $30.00 or less (including checks for registration and related charges) returned by the bank, the service charge will be $5.00 if the check is made good within five days from the date of notice and $10.00 if made good after five days from the date of notice; for a bad check in excess of $30.00 (except for initial registration fees), the service charge will be $10.00 if the bad check is made good within five days from the date of notice and $15.00 if made good after five days from the date of notice. It may be necessary to withdraw a student from school for failure to clear a check, the $10.00 Reinstatement Service Fee will be added to the other return check service charges.

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

All students are required to have a validated fee receipt to complete the registration procedure. This includes graduate and teaching assistants and others whose fees may be billed, prepaid, or waived. Delayed registration service fees are also applicable to such students.

No student is authorized to attend classes who has not obtained a class schedule from the Office of the Dean of Admissions and Records and a validated fee receipt from the Treasurer’s Office.

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

**DEFERRED PAYMENT SERVICE FEE** $3.00

This service fee is applicable when the payment of any part of a student’s account is deferred by satisfactory arrangement with the Treasurer’s Office, including accounts which must be billed to outside agencies, organizations and institutions. This fee is also applicable when a supplemental charge (out-of-state tuition, music fee, room and board adjustments, etc.) is not paid within five regular business days after the date it is incurred. Students are expected to take the initiative to pay all University obligations promptly.

**APPLICATION FEE** $10.00

Each first-time undergraduate, graduate, and Co-op/Law Application for admission to The University of Tennessee, Knoxville must be accompanied by a fee of $10.00 before it will be processed. This fee is not refundable and is not required for transfers within the University system.

**PROFICIENCY FEES** $10.00

Fees for proficiency and substantiating examinations are $10.00 per course. See page 28 for information on proficiency, CLEP, or other organized examinations.

**CO-OP REGISTRATION FEE** $5.00

If credit is received, the fee will be determined by applying the appropriate quarterly hour rate.

**AUDITOR’S FEE**

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

**SPECIAL STUDENT AND POST-BACCALAUREATE FEES**
Special students pay fees at the undergraduate rate. Post-Baccalaureate...
students pay fees at the graduate rate although graduate credit is not given for course work.

REFUND OF FEES AND ADJUSTMENTS FOR WITHDRAWALS AND DROPPED COURSES

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

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

The drop/add procedure must not be used to withdraw from school for the quarter.

For a regular academic quarter, withdrawal within seven calendar days beginning with the first day following regular registration permits an 80 percent fee refund. Withdrawal between eight and 14 calendar days following regular registration permits a 60 percent fee refund. Withdrawal between 15 and 21 calendar days following regular registration permits a 40 percent fee refund. Withdrawal between 22 and 28 calendar days following regular registration permits a 20 percent fee refund. Refunds, in accordance with the withdrawal refund policy, will be made after the drop deadline.

Part-time students may pay fees computed at the appropriate quarter hour rate as indicated above. There is no charge for courses dropped during the first five calendar days following regular registration. There is a 40 percent charge at the quarter hour rate for courses dropped between six and 21 calendar days following regular registration. There is a 100 percent charge for courses dropped after the twenty-first day following regular registration. Students who drop courses are eligible for a refund only if the sum of the charges computed at the quarter hour rate for the hours continued plus the percentage charge for the hours dropped results in an amount less than that paid. A course on a student's schedule is officially dropped and becomes effective on the date that the drop/add slip has been processed and recorded by the Admissions and Records Office. The student always has the responsibility of initiating drop/adds. Any refund due to a student for courses dropped will be made after the final audit of the end of the quarter.

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

Note: All charges and refunds will be made to the nearest even dollar. All charges are subject to subsequent audit and verification. Errors will be corrected by appropriate additional charges or refunds. Other information on fees, expenses, refunds, and adjustments is given in the timetable (schedule of classes) for each quarter.

Summer Quarter Fees and Expenses

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

Although the summer quarter is divided into terms of varying lengths, tuition and fees are assessed at the regular quarter hour rate up to the maximum charge for a complete regular quarter.

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

Estimate of Expenses

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

<table>
<thead>
<tr>
<th>Description</th>
<th>Undergraduate</th>
<th>Graduate &amp; Law</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance Fee</td>
<td>$450</td>
<td>$480</td>
</tr>
<tr>
<td>Programs &amp; Services Fee</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Room and Meals</td>
<td>1,448</td>
<td>1,448</td>
</tr>
<tr>
<td>Books, Supplies, etc.</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Total for Tennessee</td>
<td>$2,158</td>
<td>$2,188</td>
</tr>
<tr>
<td>Residents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Add for Non-Resident</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition</td>
<td>936</td>
<td>936</td>
</tr>
<tr>
<td></td>
<td>$3,094</td>
<td>$3,124</td>
</tr>
</tbody>
</table>

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

Housing

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

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

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

Additional information pertaining to single student housing may be obtained from the Office of Residence Halls, The University of Tennessee, Knoxville, Tennessee 37916.

Off-Campus Housing. Students living in off-campus housing are expected to observe the same rules of conduct and standards that apply to all students. The student is responsible for obtaining off-campus housing. The University does not inspect or approve these facilities. Tenancy 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. Information and application for these facilities may be secured from the Office of Rental Properties, The University of Tennessee, Knoxville, Tennessee 37916.

Food Service Facilities

Excellent University-operated food service facilities have been provided. They are air-conditioned, conveniently located in relation to residence halls, and serve nourishing food at reasonable prices.

The University recognizes the educational role that its food service facilities play in student life and group living. The Food Services Department employs a skilled dietetic and management staff to insure that the student gets the highest quality meal at the lowest possible cost.

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

In addition, the Food Services Department offers a charge plan whereby students can charge meals and may have the bill rendered to their parents monthly.
For the late evening snack or morning coffee break, popular spots on the campus are the student union and grill operations. Students are invited to take advantage of the special ‘theme’ meals offered in the University dining facilities throughout the year.

Student Financial Aid

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

Financial need is defined as the difference between a family’s resources and the total expenses of attendance. If there is a deficit, the student is considered to be in need of financial assistance. To assist in determining the need for financial aid, The University of Tennessee utilizes the need analysis system of the College Scholarship Service (CSS). Through the CSS form and the Financial Aid Form (FAF), the Financial Aid Office determines the amount the parents and students could generally be expected to contribute toward meeting educational expenses. For more detailed information on the determination of need, please refer to the brochure entitled, "Financial Assistance for Students."

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

Scholarships and Grants

Scholarships. The University of Tennessee, Knoxville scholarship program for new and currently enrolled students 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 proven need for assistance. There is, however, an academic merit scholarship program based only on academic achievement. To compete for merit scholarships only, a student must submit an Application for Student Financial Aid. A financial statement is not necessary. Academic achievement is judged for entering freshmen by the applicant’s secondary school academic record and scores on the American College Test Battery (ACT). Academic achievement for currently enrolled students and transfer students is judged by the applicant’s collegiate cumulative grade point average.

All scholarships, including merit scholarships, are highly competitive; despite the generosity of University friends and alumni, there are not enough funds to provide scholarship aid to all qualified students. Annual scholarship stipends range from $100 to $750. Most are awarded for one year, with the recipient competing for scholarships each year of enrollment. The Application for Student Financial Aid is a general application, and all applicants will be considered for every scholarship coordinated through the Financial Aid Office.

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

Basic Educational Opportunity Grants. This is a federal grant program for undergraduate students displaying a financial need for funds. Because the BEOG is an entitlement program, all students applying for institutional assistance for which a financial need must apply for this program. Other forms of financial assistance will not be extended to a student until eligibility for the Basic Grant has been established.

When the program is fully funded, maximum grants are $1800 and not more than one-half the cost of education. The above regulations and provisions of the Basic Educational Opportunity Grant Program are subject to change by federal legislative action.

Supplemental Educational Opportunity Grants. These are federal direct grants available to entering freshmen, transfer, and enrolled undergraduate students with exceptional financial need. Grants may be extended for a maximum of 12 quarters and must be matched dollar for dollar by other sources of financial aid, i.e., scholarships, loans, and/or earnings from University part-time employment. A Supplemental Educational Opportunity Grant may not exceed $500 or more than $1500, or exceed one-half of the student’s need for assistance. The above regulations and provisions of the Supplemental Educational Opportunity Grant are subject to change by federal legislative action.

Nursing Scholarships. The purpose of this program is to assist students of exceptional financial need who are enrolled as full-time students in a course of study leading to a baccalaureate degree or a graduate degree in nursing.

The amount of scholarship which a student may receive depends upon financial need. The maximum scholarship available for any student in a twelve (12) month period is $2,000. The above regulations and provisions of the Nursing Scholarship Program are subject to change by federal legislative action.

The Tennessee Student Assistance Award is designed to further the opportunity for higher education to residents of the state who display a financial need for assistance. Awards usually cover maintenance fees of approximately two-thirds of attendance. Applications must be submitted to the Tennessee Student Assistance Corporation. A financial statement is also required.

More information may be obtained on this program by writing to the Tennessee Student Assistance Corporation, 707 Main Street, Nashville, Tennessee 37206.

Student Loans

National Direct Student Loans. Long-term loans are available primarily through these loans. Proven need for financial assistance determines eligibility.

Loan repayment and interest payments on National Direct Student Loans are deferred until the borrower’s individual remains in full-time attendance at an accredited institution of higher education in the United States. Repayment may also be deferred for a period of three (3) years while the borrower is serving in the Armed Forces, Peace Corps, or Vista. Interest is 3 percent per year on the unpaid balance. The maximum repayment period is ten (10) years with the current minimum annual repayment $360 or 10 percent of the accumulated loan, whichever is greater.

If upon graduation the borrower becomes a full-time teacher in a public or nonprofit school which is designated by the commissioner as having a high enrollment of low-income families or becomes a first time home buyer, 15 percent of the total principal plus interest is 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 staff member in a preschool program which is operated for a period comparable to a full school year, 15 percent of principal plus interest will be cancelled for each year of service.

Cancellation for up to 50 percent of the loan will also be given at the rate of 12½ percent of the total principal plus interest for each year of Armed Forces service in an area of hostility.

An undergraduate may be extended a maximum annual loan of $1250 to an accumulated loan total of $5000. Graduate level students may be extended a maximum loan of $2500 to a maximum accumulated loan total of $10,000. The above regulations and provisions of the National Direct Student Loan Program are subject to change by federal legislative action.

The University of Tennessee Student Loans. Student loans from University sources are available to currently enrolled students with a 2.0 or above cumulative grade point average. A loan of up to $250 per quarter to an annual maximum of $1000 can be extended. One surety or cosigner is required for each promissory note and a new promissory note must be completed each year. The interest is 3 percent per annum payable annually on July 1 of each year. Repayment of the amount borrowed plus any unpaid accrued interest shall begin on the first day of the fourth month following graduation, withdrawal or transfer from The University of Tennessee, Knoxville or when the student ceases to be a student at least one-half of the full-time academic workload. Minimum monthly installments will be $30 per month or 1/36 of the amount borrowed, whichever is greater. The borrower may at his option and without penalty pay all or
any part of the loan plus interest before entering the normal repayment period.

Nursing Student Loans. These loans are available to students who are enrolled or admitted as students in a course of study leading to a baccalaureate or graduate degree in nursing and who show need of assistance in order to pursue their course of study. The program provides a low-interest loan with an annual interest rate with repayment beginning nine months following termination of half-time study at an accredited school of nursing. Repayment may be deferred for a period up to three years while the borrower is serving in the Armed Forces or Peace Corps or up to five years for a full-time course of study leading to advanced professional training. If upon graduation the borrower becomes employed full-time as a registered nurse in a public or nonprofit private agency or institution, up to 85 percent of the principal may be cancelled at the rate of 15 percent of the loan that was unpaid on the first day of employment plus interest for the first three years of employment and 20 percent for the fourth and fifth years.

The above regulations and provisions of the Nursing Loan Program are subject to change by legislative action.

Health Professions Loan. This loan is available to students who are enrolled or admitted in a course of study leading to a degree of Doctor of Veterinary Medicine and who show need of assistance in order to pursue their course of study. The program provides a long-term, low-interest loan with repayment beginning 12 months following termination of full-time study at an accredited health professions school. Repayment may also be deferred for a period up to three years while the borrower is serving in the Armed Forces or Peace Corps or for the years required for a full-time course of study leading to advanced professional training. Interest is 7 percent per year on the unpaid balance; the maximum repayment period is 10 years. However, a minimum monthly payment may be required. Up to 85 percent of a Health Professions Student Loan will be repaid by HEW if the Veterinary Medicine graduate enters into a contract to serve as a veterinarian in a shortage area designated by HEW. The maximum loan available to an individual borrower in an academic year is $3,500.

The above regulations and provisions of the Health Professions Loan Program are subject to change by federal legislative action.

Guaranteed Student Loans to help meet educational expenses may be available through the federal government or a state guaranteeing agency. Students should contact their local bank or credit union to determine their participation in the program. To receive the loan, a student must be admitted to or in regular full-time attendance in good standing at the University. Interest on such loans is paid by the federal government while the student is a student; if the student is eligible for interest benefits. During the repayment period which begins no less than nine months after graduation or withdrawal from the University, the student pays up to 7 percent simple interest. The maximum amount of a loan to an undergraduate in a 12-month period cannot exceed $2,500.

Total loans outstanding may not exceed $5,000 or the undergraduate or $10,000 for the graduate student.

Complete information is available at most banks and credit unions. In the state of Tennessee, write to the Tennessee Student Loan Corporation, 707 Main Street, Nashville, Tennessee 37206.

Student Employment

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

The College Work-Study Program is a federal work program which provides jobs for students who have financial need and who must earn a part of their educational expenses. Eligible students are placed in jobs on or off campus where they work approximately fifteen (15) hours per week. The Student Employment Service operates a salary registration referral agency. It coordinates listings of part-time employment from both University and private employers with the requests of students seeking part-time employment. Referrals are made in accordance with the student's skills and qualifications. Part-time jobs average from 15 to 20 hours per week. If part-time employment is a financial necessity to the student with a low grade average, the student is advised to accept a job requiring fewer hours of work per week.

The University of Tennessee wishes to express gratitude to the contributors and donors of the following scholarships:

George G. Abraham Scholarship Fund
AFL-CIO Estes Kefauver Memorial Scholarship Fund
Agrico Scholarship
Agricultural Faculty-Alumni Scholarships
James T. Allor Scholarships
Air Force ROTC
Akima Club Interior Design Scholarship
Alcoa Foundation Scholarships
All-Singer National Referral Agency
Clyde and Grace W. Alley Scholarships
Allied Chemical Foundation Scholarship Grant
Alpha Delta Lambda
Joe Mac Alphin Memorial Scholarship
Altrusa Club of Knoxville Scholarship
American Chemistry Society Scholarship
American Institute of Metals, Oak Ridge Section, Scholarship
American Society of Tool and Manufacturing Engineers-Knoxville-Oak Ridge Chapter Scholarship
AMFS Scholarship Fund
Ida A. Anders Scholarship
Anderson County Agricultural Scholarship
Animal Husbandry Award
Armour and Company Scholarship
Army ROTC
Max B. and Lalla B. Armstrong
J. Clayton Armstrong Training Scholarship
General Henry H. Arnold Educational Fund
Art Department Art Auction Scholarships
Captain Samuel B. Ayers Memorial Scholarship
ASQC Electronics Division
Clyde B. Austin Memorial Scholarship
Charles H. Bacon Scholarship
Bacon-Beard Scholarship in Philosophy Fund
Hop Bailey, Sr. Scholarship
John Bailey Company Business Interest Fund
Howard H. Beard Memorial Fund
Bank of Cowan Agricultural Scholarship
Bank of Maryville Scholarship
The Barnhill Scholarship
Paul Barnhill Memorial Scholarship Fund
Grace and Brodie Baynes Scholarships in Accounting

C. Grier Beam Scholarship in Transportation
Beard Scholarship in Philosophy Fund
Bedford County Farmers Cooperative Agricultural Scholarship
Roy F. and Addie Bell Scholarships
Bellevue School of Veterinary Medicine
The Carl M. Bennett Scholarship
Stelmon Bennett Agricultural Scholarship Fund
Edna M. and King M. Benson Memorial Scholarship Fund
Berkinline Corporation Scholarships
Beta Gamma Sigma Scholarship
Beta Sigma Phi Scholarship
Karl and Madira Bickel Scholarships
Mr. and Mrs. W. E. Bibb Scholarship
Voula Bitzas Scholarship
Bledsoe County Agricultural Scholarship
Block and Bridle Agriculture Scholarship
Amanda Minnis Bonham Scholarship
Frederick T. Bonham Foundation Scholarships
Frederick T. Bonham Journalism Award
Borden Home Economics Scholarship Award
Dr. Wade H. Boswell Scholarship
Donald H. Bradley, Sr. Scholarship
Harry E. Bradley Scholarships
Brainard Kwanis Club Agriculture Scholarship
Hitton T. Brooks Scholarship
Margaret Browder Scholarships
Fred and Ruth Brown Scholarship
Grover C. Brown Memorial Scholarship
Nell Mann Brown Scholarship
William Lester Brown Memorial Scholarship
William P. Bryant Scholarship Fund
W.W. Burchfield Scholarship
Jim Erne Estes Kefauver Memorial Scholarship Fund
Burlington Industries Foundation Scholarships
C & M Livestock Market, Inc. Agriculture Scholarship
Campbell County Agricultural Scholarship Fund
Cannon County Agricultural Bank Book Scholarships
Cannon County Agricultural Scholarship
Central State Bank of Lexington Scholarship
Frank Chance Agricultural Scholarships
E. J. Chapman Memorial Scholarship Fund
Chattanooga Hotel-Motel Scholarship
The Chemstrand Corporation Scholarship
George S. Child, Sr. Memorial Law Scholarship
The Church Street Methodist Church
Bertha Walburn Clark Orchestral Instruments Award
W.C. Clay Agricultural Scholarship
Frank G. Clement Foundation Mental Health Scholarship
Lilton T. Cornman Scholarship
Cocke County Farm Bureau Agricultural Scholarship
Cocke Farmers Coop Agriculture Scholarship
Coffee County Alumni Scholarship Fund
Guy Cohnelick Commercial Scholarship
The College of Education Alumni Scholarships
The College of Home Economics General Scholarships
Ed Collins Memorial Scholarships
Colonial Baking Company Scholarships
Columbia Gas of Ohio Education Scholarship
Continental Oil Company Scholarship
Continuing Education of Women Scholarships
J.A. Cooley Memorial Scholarship
Corley Manufacturing Company Scholarship
Dr. and Mrs. Dennis Doughlin Scholarship
Ray Cowles Memorial Scholarship Fund
Carl T. Cox Memorial Scholarship
Taylor H. Cox Memorial Scholarship
Nellie Crooks Scholarship
Robert A. and Mary Neal Culver Scholarship
Awards in Theatre and Music
Cumberland Farmer's Mutual Agricultural Scholarship
Bernard I. Dalbign Memorial Scholarship
Jack Daniel Distillery Food and Lodging Scholarship
Drummen, Inc. Scholarships
Davidson County Farm Bureau Agricultural Scholarship
Captain Herbert L. Devis Memorial Law Scholarship
Elia J. Day Scholarship
Delta Airlines Scholarships
Delta Delta Delta Local Scholarship
C.H. III and K.W. Dixon Scholarship
Dr. K.G. Dixon Scholarship
Grace Darden Doggett Scholarships
Patterson and Dewar Engineers, Inc., Scholarship
Pennsylvania Psychiatric Hospital Scholarship Fund
William Pitt Pennebaker Scholarship
Carl I. Peterson Scholarship Fund
Phi Kappa Lambda Music Fellowship
Phi Kappa Phi Society Scholarship
Phillips Petroleum Company Fellowship
Pi Kappa Delta Fellowship
Pi Kappa Pi Scholarship
Pi Theta Cappa Graduate Fellowship
Pi Theta Kappa Chapter Scholarship
Pilots' Training Fellowship
Pilots For Carriers Inc., Scholarship
Pilots Oil Corporation Scholarship
Pioneer Black Fellowship
Polk County Agriculture Extension Scholarship
Joe Frank Porter Scholarship
Porter-Walker Hardware Company Agricultural Scholarship
Joe Price Scholarship
Prater Equipment Company Scholarship
President's Student Aid Fund
Prout Foundation Music Scholarships
Price Waterhouse Foundation
Procter and Gamble Company Fellowship
J. Armstrong Quillen Memorial Scholarship Fund
Ralston Purina Company Fellowship
Rechenbach's Art Scholarship Fund
Rechenbach's Crafts and Interior Design Award
Rechenbach's Crafts and Interior Design Award Fund
Rehabilitation Corporation of Tennessee Scholarship
Retail Clerks International Association Estates
Kefauver Memorial Scholarship Fund
J. Clark Rhoads Graduate Fellowship
Grants Mort Rice Memorial Award
Stephen D. Rimmer Memorial Scholarship
Walter A. Riner, Sr. Endowed Scholarship
Roane County Council of Home Demonstration Clubs Scholarship Fund
Robinson County Farm Bureau Home Economics Scholarship
Thomas L. and Emma H. Robinson Scholarship
Fred M. Roddy Scholarship
Rohm and Haas Company Scholarship
Callie Wood and Ross Scholars
R.O.T.C. Memorial Scholarship Fund
Paul Leonard Roth Memorial Scholarship Fund
Jesse and Martha Safley Agricultural Scholarship
John Sample Account of Connecticut Mutual Scholarship
Schenley Industries Food and Lodging Scholarship
Scholarship Foundation Scholarships
Virginia and Alfred Schmidl Scholarship
Bernadette E. Schmitt Scholarship Fund
Aubrey Scott Memorial Scholarship
Scripps-Howard Foundation Scholarships
Sears-Roebuck Foundation Scholarships
Home Economics Scholarships
Sevier County Farmers Cooperative Scholarship
Sevier County Scholarship in Organ
John A. Sexton Forestry Scholarship
Alex Shaffer Memorial Scholarship Fund
Aaron J. Sharp Fund
Lynn Sheets Scholarship, Dr. Lynn Memorial Award
Sherwood Chevrolet Company Scholarships
Beverly Shrode Agricultural Memorial Scholarship
Sigma Alpha Epsilon Scholarship
Sigma Alpha Iota Scholarship
Charles D. Simms Scholarship
Charles D. Simms Scholarship Fund
J. Hungerford Smith Company Scholarship in Food Technology
Smith Farmers Inc. Scholarships
Elizabeth Z. Smoak National Alumni Association Scholarship
Smokey Mountain Chapter of NABAC Scholarship
Snelling and Snelling Teacher Training
Cyri A. Soanes Prize
Socoyon Mobil Scholarship in Geology
Helen Snowling Scholarship
Southern Skipper & Motor Carrier Council Scholarship Fund
Standard Tennessee Bank and Lodging Scholarship
Richard Stansfield Scholarship
Stauffer Chemical Company Scholarships
Ruth Stephens Avenue Scholarship
Dr. Ruth Stephens Scholarship in History
Dr. Ruth Stephens Scholarship in International Relations
William B. Stokely, Jr., Foundation Master of Business Administration Fellowship
William B. Stokely, Jr., Scholarship
William B. Stokely, III, Scholarship
Elsa Wattenbarger Scholarship
Stocks Foods Corporation Scholarships in Home Economics
Joe Sullivan, Jr. Scholarship
Sullivan County Agricultural Scholarship
Glenn G. Summers Agriculture Fund
L.J. Sweeney Engineering Scholarship
Swan Brothers, Inc. Scholarship
Tata Bapal Pi Scholarship
Tata Bapal Sigma Scholarship
Judge George Caldwell Taylor Memorial Scholarship
Tennessee Association of Broadcasters Scholarship
Tennessee Association of Extension Home Economics Scholarship
Tennessee Association, Future Homemakers of America-Margaret Browder Scholarships
Tennessee Association of Real Estate Boards Scholarship
Tennessee Association, Knoxville Auxiliary, Scholarship
Tennessee Claims Insurance Scholarship
Tennessee County Agents' Association Scholarship
Tennessee Eastman Scholarship Fund—Charles H. Taylor Scholarship
Tennessee Eastman Scholarship Fund in Management
Tennessee Farm Bureau Federation Agricultural Scholarship
Tennessee Farmers Cooperative Agricultural Scholarship
Tennessee Farmers Mutual Insurance Company Agricultural Scholarship
Tennessee Forest Resources Garden Clubs Forestry and Horticulture Scholarships
Tennessee Home Demonstration Agents
Tennessee Howard Johnson's Food and Lodging Scholarship
Tennessee Jaycettes Special Education Scholarship
Tennessee Restaurant Food Educational Association Scholarship Fund
Tennessee Road Builders Association Scholarships
Tennessee Society of Certified Public Accountants Scholarships
Tennessee Valley Bank Scholarship
Tennessee Valley Bank Scholarship in Agriculture
Thorn, How, Stratton & Strong Scholarship
Triton Loan Company Scholarships
Steve Tollor Forestry and Mechanical Engineering Scholarship
William M. Tolley Scholarship Fund
Toms Foundation Scholarships
Townsend-Estes Kefauver Memorial Scholarships
The Willburn B. Townsend Memorial Scholarship
Tractor Sertil Forestry Scholarship
Transportation Department Scholarships
Tri-State Roofing of Tennessee Scholarship
Trousdale County Farm Bureau-Young Farmers and Homemakers
Union Bag-Camp Paper Corporation Scholarship
United Auto Workers Estes Kefauver Memorial Scholarship
United Steelworkers of America Estes Kefauver Memorial Scholarship Fund
University of Tennessee National Alumni Association Freshmen Scholarships
University of Tennessee National Alumni Association Upperclassmen Scholarships
University of Tennessee National Alumni Association Valedictorian Scholarships
University of Tennessee National Alumni Association National Merit Scholarships
University of Tennessee National Alumni Association National Scholarship
University of Tennessee National Alumni Association National Scholarship
University of Tennessee Bank Scholarships
University of Tennessee Hospital Auxiliary
University of Tennessee International Scholarship Fund
University of Tennessee Knoxville School of Architecture Endowment Fund
Victory Van Lines Agricultural Scholarship
Vinylex Corporation Scholarship
Frederick Bickford Vreeland Scholarship
George A. Wagoner Graduate Scholarship in Business Education
Senator Herbert Watters Foundation Scholarship
Charles A. and Myrtle Warner Memorial Law Scholarship Fund
Harold C. Warner Centurion Endowment Fund
Ira A. Watson Retailing Scholarship
J.R. Wauchope & Company, Consulting Engineers, Scholarship
William Way Memorial Scholarship
Weakley County Farmers Cooperative Scholarship
Wrenn Sizzlin Steak House Food and Lodging Scholarship Fund
Daniel B. Wexler Agricultural and Business Administration Scholarship
C.F. Whiteside Memorial Scholarship Fund
in Education
White Storey, Inc., Scholarship Fund
C.E. Wiley Scholarship in Dairying
Marjolin Wilkinson Scholarship
Wynne-Rounds Farm Bureau Agricultural Scholarship
Odeli Willis Scholarship
Wilson County Agricultural Extension Scholarship
H.W. Wilson Scholarship
Winchester Rotary Club Agricultural Scholarship
J.H. Winstead, Jr., Memorial Scholarship Fund
Chancellor Glenn W. Woodlee Scholarship Fund
Mary Warner Loan Fellowship Fund
David Wight Scholarship in Voice
Dick Wight Scholarship
Gertrud Wunderlich Scholarship in German
Edwin F. Zwicker Scholarship

The University of Tennessee wishes to express gratitude to the contributors and donors of the following loan funds:
American Association of University Women Loan Fund
American Institute of Architecture Loan Fund
Samuel W. Atkins Loan Fund
W. Trox Bank Loan Fund
Bibby-Altrusa Loan Fund
John L. Boyd Student Loan Fund
John H. Cantrell Scholarship Fund
W.W. Carson Loan Fund
Fred Collins Memorial Loan Fund
Nancy M. Crum Loan Fund
E.P. Frost Memorial Foundation (The Scarbaben
Senior Society Loan Fund)
Eugene Gamble Loan Fund
Heilen G. Gibson Loan Fund
Gordon A. Hawkins Memorial Loan Fund
Flora Cline Hooper Memorial Loan Fund
J.E. Hogan Loan Fund
Ruth Hope Memorial Loan Fund
R.N. Kesterson Scholarship Fund
Knoxville Academy of Medicine Loan Fund
J.E. Lutz Memorial Loan Fund
Clarence H. Moody Loan Fund
Ise Moore Memorial Loan Fund
Phi Kappa Phi Loan Fund
Phyllis Almamee Association Loan Fund
Mary Plummer Memorial Loan Fund
Maudie Powell Student's Aid Fund
James H. Rader Membership Loan Fund
Charles C. Rittoff Loan Fund
William Rule Loan Fund
Senior Memorial Loan Fund, 1922
Senior Memorial Loan Fund, 1925
Sarah Hawkins Sevier Memorial Fund
James A. Shull Loan Fund
J. Allen Smith Students' Aid Fund
Southern Railway Loan Fund (William Wilson Finley Foundation)
B.R. Strong Trust Fund
Students Loan Fund (National)
Students Loan Fund of the Tennessee Banker's Association (Fred Collins Memorial Founda
Mary Boyce Temple Loan Fund
Williamson County Farm Bureau Scholarship
Nathanial S. Woodard Memorial Loan Fund

Honors and Awards

The honors and awards available to students at UT are listed with donors below and the right not to award any of the honors or awards listed herein is reserved to The University of Tennessee, Knoxville.
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 has made 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 embossed 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 ten percent of their class.

The Block and Bridle Club recognizes students in Animal Science who are successful in their academic program and 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 Min-Wana on the shores of Lake Michigan for an outstanding agricultural student following the freshman year.

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

J.B. Madden Memorial Foundation Fund, established by J.B. Madden family. Income from $1,000 fund, for prizes in livestock judging competition.

Student-Faculty Council Awards. Each year the College of Agriculture Student-Faculty Council presents plaques to four seniors, three juniors, and two sophomore students in the College judged to be outstanding. Selection is based on scholarly 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. $100 available for awards to students competing in poultry and poultry products judging.

School of Architecture

Malcolm Rice Achievement Award. $100 awarded annually to the third-year student showing most improvement with design studio.

College of Business Administration

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

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

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

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

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

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

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

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

Smoky Mountain Chapter of the Bank Administration Institute Scholarship. A scholarship for an outstanding senior in the field.

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

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

Alcoa Foundation Scholarship. $600 to an outstanding undergraduate planning a career in public relations.

Alcoa Foundation Minority Scholarship. $600 to an outstanding undergraduate minority student in the College.

Karl and Madira Bickel Scholarships. Freshman Scholarships up to $1,000. Upperclassman Scholarships up to $1,000. Doctoral Scholarships up to $4,000. Open to all students showing academic performance (3.00 or B or better), professional promise and need.

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

Ernie Pyle Memorial Award, given by Scripps-Howard Newspapers. A certificate and basic journalism library awarded to the outstanding senior in recognition of scholarship and journalistic achievement.

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

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

Journalism Faculty Scholarship. Up to $500 to an outstanding major in the School of Journalism.

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

Pen Women of America Scholarship. $100 given by the Knoxville Branch to an outstanding junior journalism student who has shown promise as a writer.

Frank B. Powers Scholarship, given by Scripps-Howard Newspapers. $1,000 total to one or more outstanding undergraduates in the Department of Advertising.

Sammie Lynn Pueell Award, given to outstanding student in public relations sequence in the School of Journalism.

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

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

College of Education

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

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

College of Engineering

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

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

American Institute of Aeronautics and Astronautics. Award of one-year membership made to a branch member whose performance scholastically and in branch activities has been outstanding.

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

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

American Society of Mechanical Engineers. Award and certificate presented each year to a member of the student section for outstanding work with the professional society.

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

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

Association of Textile Industrial Engineers Award. A $500 1-year award based on need, given by the Department of Industrial Engineering to a senior.

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

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

East Tennessee Section of the Institute of Electrical and Electronics Engineers. Cash award given annually to junior in electrical engineering with an outstanding scholastic record.

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 majoring in engineering science. Letter of recognition, plaque.
J. Mack Tucker Outstanding Senior Award. Recognized by the Student Section of the American Society of Mechanical Engineers of the outstanding senior in the Department of Mechanical and Aerospace Engineering. Award is based on leadership, scholarship, and service. Name on plaque.

Jere B. Ford Memorial Scholarship. A minimum award of $300 awarded annually by the Tennessee Building Association to an outstanding civil engineering student.

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

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

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

University of Tennessee Book and Supply Store Award. A new student orientation seminar award given quarterly. Chosen by departmental committees in rotation. Given to an upperclass student on the basis of need and demonstrated academic performance.

College of Home Economics
Akima Club Interior Design Scholarship. Awarded to student enrolled in interior design. Is state tuition.


Central State Bank of Lexington. Awarded to student from Henderson County. $300.

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

Frank and Ruth Liggert DeFriesse Scholarship. Awarded to a home economics student annually.

Donelson Home Economists. $500.

General Foods Fellowship. Awarded to home economics doctoral students. Two, $2,000.

Irene Hill Greene and Condon L. Greene Memorial Scholarship. Awarded to student from Anderson County. $300.

Gibson County Farm Bureau. $400.

Jessie W. Harris Scholarship. Awarded to sophomore, junior and senior with highest scholastic records. Three, $300 each.

Hawks County Farm Bureau. Awarded to a freshman from Hawkins County. $300.

Herdon Dietetic Scholarship. Awarded to students enrolled in the coordinated undergraduate program in dietetics. Ten, $100 each.

Howard Johnson's Scholarship. Awarded to student enrolled in the tourism, food and lodging administration program. $700.

Tennessee Howard Johnson's Scholarship. Awarded to student enrolled in the tourism, food and lodging administration program. $700.

University of Tennessee General Scholarships. Variable.

Washington County Farm Bureau. Awarded to student from Washington County. $300.

Western Sizzlin Steak House Scholarship. Awarded to student enrolled in the tourism, food and lodging administration program. Two, $200 each.

White Stores Scholarship. Awarded to an entering freshman. $450.

F. Dwight McDonald Scholarship. Awarded to an entering freshman. $450.

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

Herbert L. Davis Memorial Trust Fund. An award of $100 to the law student who has the highest scholastic average for the first two years of work in the College of Law.

Knoxville Auxiliary to the Tennessee Bar Association. An award of $150 to law student who has the highest scholastic average in the first year of work in the College of Law.

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

Nashville Hotel-Motel Association Scholarship. Awarded to student enrolled in the tourism, food and lodging administration program. $500.

Nashville Area Home Economists in Homemaking Scholarship. Awarded to a Nashville resident. $500.

Nashville Hotel-Motel Association Scholarship. Awarded to student enrolled in the tourism, food and lodging administration program. $500.

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

National Institute of the Foodservice Industry. Awarded to student enrolled in the tourism, food and lodging administration program. $500.

Omicron Nu Sophomore Scholarship Award. $150. Awarded by the home economics honor fraternity.

Joe Powell Memorial Scholarship—District II 4-H All Stars. Awarded to 4-H All Star member from District II. $300.

Roane County Council of Home Demonstration Clubs. Awarded to freshman from Roane County. $250.

Schenley Industries Scholarship. Awarded to student enrolled in the tourism, food and lodging administration program. $300.

Scruggs Restaurant Equipment, Inc., Scholarship. Awarded to student enrolled in the tourism, food and lodging administration program. $500.

Standard Textile Scholarship. Awarded to student enrolled in food, travel and lodging administration program. $100.

Stalater Foundation Scholarship. Awarded to hospitality students throughout the United States. $500 to $2000.

Stouffer Foods Corp. Scholarship. $300.

Tennessee Chapter of Future Homemakers of America. One, $300.

Tennessee Dietetic Association. Awarded to upperclass student enrolled in dietetics program.

Tennessee Rehabilitation Corporation Scholarship. Ten, $450 each.

Tennessee Restaurant Association Scholarship. Awarded to student enrolled in tourism, food and lodging administration program. $500.

Association of Extension Home Economists. $250.


University of Tennessee General Scholarships. Variable.

Washington County Farm Bureau. Awarded to student from Washington County. $300.

Western Sizzlin Steak House Scholarship. Awarded to student enrolled in the tourism, food and lodging administration program. Two, $200 each.

Bain-Swiggert Poetry Prize, for excellence in writing conventional forms of English poetry, $65.

Phil Sherman Bennett Prize, established by the late Hon. William J. Bryan. Cash award to student submitting best essay discussing principles of free government.

Biology Award. Plaque, to the outstanding biology senior.

Eleanor R. Burke Award, for excellence in expository writing. Awarded to the student with the highest academic average in the English department, $55.

Captain Robert A. Burke Award, for excellence in English prose fiction. Awarded to the student with the highest academic average in the English department, $55.

Chi Omega Prize, given by Pi chapter of sorority, $25, to the senior girl majoring in the social sciences, with the greatest proficiency in the subject.

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

Maud Callaway Hays Scholarship. Variable scholarship of approximately $200 to senior history major with special interest in U.S. history.

History Department Scholarship. $360 to history major with financial need.

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

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

Knickerbocker Poetry Prize, for excellence in writing English poetry. Awarded by the late Stephen L. Mooney in honor of a former head of the English department, $50.

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

Charles L. McClung Prizes. First prize of $100, second prize of $50, to junior or senior for excellence in composition and declamation. Subjects are set by the Department of Speech and Theatre.

J. Harvey Mathes Tennessee D.A.R. American History Scholarship. Interest on $500, to women student histamers 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. Awards of $100 given quarterly to outstanding students.

Judson H. Robertson Award in Analytical Chemistry. Endowment established by family and friends of the late Professor Robertson. $100 to student with highest scholastic average in sophomore analytical chemistry courses.

Barnadotte Schmitt History Scholarships. Two scholarships of $500 each for academic excellence, and one of $500 based on financial need. History majors only.

Ruth Stephens Award in International Relations and International Law, established by the late Mr. and Mrs. Ruth Strong, Nashville. Divided from investment of $1,500, to student showing greatest knowledge of international relations or international law.

Ruth Stephens History Scholarship. $400 to history major for academic excellence.

Rush Strong Medal, established by the late Benjamin Rush Strong, Knoxville. Medal to student submitting best essay on "The Value of Truth."

Lee L. Verstandig Fellowship in History. Cash award to an outstanding student in history.

Pauline Capell Walker Prize in French. $10, to senior French major with greatest mastery of language, literature, and civilization of France.

Campus Honorary and Professional Fraternities and Societies

A number of honorary and professional fraternities have chapters at the University of Tennessee at Knoxville. Membership in these organizations is generally based on the initiate's good character, proficiency in the chosen field, leadership characteristics, and a high scholastic record. Those honorary fraternities only 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 quarter and be elected to membership by others in the local chapter.

Alpha Epsilon Delta, for students preparing for study of medicine. Students with minimum 3.0 average in all courses may be pledged at end of their first three quarters in the University, or at end of four quarters with a minimum 2.8 overall average. They may be initiated at end of five quarters if an overall 2.8 average has been maintained.

Alpha Phi Omega. Any undergraduate who is a former Scout is eligible for membership. A pledge must have completed one quarter of academic work with an average grade of 2.0 before eligible for Melton.

Alpha Pi Mu, for industrial engineering students. Prospective members are chosen from the upper two-thirds of the junior 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 two-thirds of their respective class and show leadership ability.

Beta Alpha Psi, for accounting students. Any undergraduate or graduate accounting major registered in the department must have a minimum B average in accounting subjects and a minimum B-Minus average in all subjects, is eligible for active membership.

Beta Gamma Sigma, national business honorary society. Minimum requirements for undergraduate student membership include a major in a College of Business Administration curriculum, and top 5 percent of all such students having completed 120 through 150 credit hours, or top 10 percent of all those having completed more than 150 credit hours. Additional criteria pertain to number of business administration credit hours and number of transfer hours/previous academic performance for transfer students. MBA students must be in the top 20 percent of graduate class and must complete all degree requirements with a minimum GPA of 3.50.

Delta Nu Alpha, for transportation students. Prospective members must have completed the basic transportation courses and have a minimum 2.3 average.

Delta Pi Epsilon, for business education graduate students. Prospective members must have a minimum 3.0 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 45 quarter hours University credit with a scholastic average of at least 2.5 for initiation.

Delta Sigma Rho-Tau Kappa Alpha honor societies for junior and senior students who have participated at a high level of excellence in intercollegiate forensics or original speaking activities and who rank in the upper 35 percent of their college class.

Delta Theta Phi, for law students.

Eta Kappa Nu, for electrical engineering students. Members may be selected from juniors ranking in the upper one-fourth, or seniors ranking in the upper one-fifth of their respective electrical engineering class.

Eta Sigma Phi, honor society for students 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, scholastic honor, educational-service organization open to students in all fields of study. Prospective members, usually inducted in the fall and spring, must have completed 15 hours of study, rank in the upper 20 percent of their respective college and have a minimum of 3.4 average.

Gamma Delta Sigma, agricultural honorary society for graduating seniors, graduate students, faculty, and agricultural alumni. Seniors selected must be in the upper one-fourth of the graduating class in the College of Agriculture and must have a 3.4 average or better. Graduate students must have a 3.5 average or better. They must have attended 24 hours toward the advanced degree. They must have shown promise or superior ability in course work and advanced study and advanced research or search directly concerned with agriculture and of making worthy contributions in their respective fields.

Gamma Theta Upsilon, honor society for students majoring in geography.

Iota Lambda Sigma, for industrial education students. No one may be initiated until he has accumulated a minimum of 30 quarter hours in industrial education courses with at least B average.

Kappa Delta PI, honor society for professionals and students in education. Minimum 3.5 grade point average. Recognizes outstanding contributions in field of education. Membership by invitation.

Mortar Board, for senior students. Members are elected from students with a minimum 3.0 average for nine quarters of University study.

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

Order of the Conclave, for law students.

Phi Alpha Delta, for law students.

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

Phi Beta Kappa, the oldest national academic honorary society, for liberal arts juniors and seniors who are candidates either for the Bachelor of Arts or the Bachelor of Science in Chemistry degree. Grade point average varies with number of hours completed; minimum is 3.50. At least 90 hours must have been earned at UTK. Students must have completed the second college year course (or equivalent) in a foreign language. Election takes place in October and April. For details, 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 woman student interested in the College of Business Administration, or specializing in business and/or economics, being at least a third-quarter freshman and having at least the all-student average, is eligible for membership.

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

Phi Delta Phi, for law students.

Phi Eta Sigma, for freshmen who have a minimum grade point average of 3.5 the first quarter or first three quarters while carrying a full academic load. All candidates must rank in upper 20 percent of their respective class, with a minimum 3.0 average. Meeting these requirements does not necessarily assure election.

Phi Mu Alpha, (Sinfonia), professional music fraternity for students interested in music. Requirements: a 2.5 overall average. The main purpose of the organization is to further American music in the campus and community.

Pi Delta Phi, for French students. Prospective members must have a minimum 3.0 average in all French courses taken.

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

Pi Lambda Theta, a national honor and professional association in education. Open to juniors and seniors with a minimum 3.2 GPA and graduating in May.
Student Affairs and Services

Office of the Vice Chancellor for Student Affairs

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

Office of Career Planning and Placement Service

This service is engaged in two major activities. The Career Planning Office helps students examine careers based on individual strengths, interests, and aspirations. Workshops on career decision making, assertive training for job seeking skills, and résumé writing, are offered several times each quarter. Individual career advising is available.

The Career Resource Center contains current occupational information (employment outlooks, salary schedules, how to get jobs with the government, and others) on several thousand career areas.

The Placement Service offers students job bulletins containing current job openings, on-campus interviews with nationwide companies, and a credential service where students can maintain a file of recommendations and a data card.

Office of the Dean of Admissions and Records

All matters relating to undergraduate admission to the University and to credit for work at other schools and colleges are administered by the Dean of Admissions and Records. All credit, applications for admission, and inquiries about admissions should be addressed to the Director of Admissions, The University of Tennessee, Knoxville, Tennessee 37916.

Student Financial Aid is also administered under the direction of this office. Information on available financial aid may be obtained by writing the Director of Financial Aid, 301 Student Services Building, The University of Tennessee, Knoxville, Tennessee 37916.

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

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

Office of the Dean of Student Activities

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

Office of the Dean of Student Conduct and Orientation

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

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

Office of International Student Affairs

The office assists students from other countries with the many matters which are of particular concern during their stay in the United States. It also serves as the official University representative in all matters involving immigration authorities, international educational organizations, and foreign governments.

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

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

Non-U.S. students who are applying for Graduate School admission should write to: The Vice Chancellor for Graduate Studies and Research, The University of Tennessee, Knoxville, Tennessee 37916, U.S.A. Persons seeking undergraduate admission should apply to: Director of Admissions, The University of Tennessee, Knoxville, Tennessee 37916, U.S.A. Other specific inquiries or requests for more detailed information may be directed to: Office of International Student Affairs, 201 Alumni Hall, The University of Tennessee, Knoxville, Tennessee 37916, U.S.A.

UNIVERSITY INTERNATIONAL HOUSE

The "International House" is located approximately two blocks from the heart of the campus. It is provided by the University and operated by the Office of International Student Affairs as a facility where domestic and foreign students can come together to relax and discuss matters of mutual interest.

An executive committee composed of students and faculty representing all national student groups, campus student government groups, and University administrators oversees the operation of the House and supervises a variety of weekly programs.

University Center

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

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

The expansive food service on the ground level provides the finest food available on campus. The large, modern, two-level book store is on Stadium Drive. Such facilities as the central ticket office, day student lounge, and the post office are conveniently located on the ground level.

The first floor is the student program area. An auditorium with 575 seats, a 150-seat seminar room, a music listening room, and four public lounges supplement the large ballroom and meeting rooms for any type of campus event. Large banquets, dances, and receptions are planned and serviced in the expansive area.

Administrative offices for the building, student programs and organizations, and additional dining facilities are located on the third floor. The meeting rooms and services of the Center are available to all approved student groups. Requests for usage are completed with the Reservations Office.

THE UNIVERSITY BOOK AND SUPPLY STORES

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

Small branch stores are located in Hess Hall, Presidential Court, and Andy Holt Apartments. These stores are open 6½ days a week for the student's convenience.

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

Office of Recreation

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

STUDENT AQUATIC CENTER

The Student Aquatic Center Recreation Complex affords year-round recreation for all students. Outdoor facilities include an Olympic-size swimming pool with a diving well having two one-meter and one three-meter diving boards, and an Olympic diving tower with five, seven and one-half, and ten meter platforms; three large areas with grass carpeting and outdoor furniture for sun bathing; a large football court; basketball courts; paddleball/handball courts; soccer and shuffleboard courts; and a nine-hole practice putting green. Sports equipment for these facilities is issued at no charge to the student.

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

All facilities of the Student Aquatic Center except swimming are available from 8 a.m. to 9 p.m. Monday through Friday, 8 a.m. to 5 p.m. Saturday, and 12 noon to 6 p.m. on Sunday. The pool is open Monday through Friday 12-9 p.m.; Saturday 12-6 p.m.; Sunday 1-6 p.m.

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

The league activities include basketball, bowling, football, golf, handball, paddleball, racquetball, softball, squash, table tennis, tennis, turkey trot, and volleyball.

SPORrS CLUBS

Sports Clubs are organized when students express an interest in a certain activity or because of anticipated needs.

The Sports Club Office will assist students wishing to organize any type of sports club.

The Sports Club Office is located in the Student Aquatic Center, Room 202. The clubs are archery, bicycling, bowling, boxing, canoeing, crew, diving, fencing, field hockey, flying, floor hockey, gymnastics, handball, ice hockey, ice skating, judo, karate, lacrosse, racquetball, rugby, sailing, scuba, skateboard, snow ski, soccer, sports car, table tennis, trap & skeet, volleyball, water ski, and weightlifting.

FREE PLAY

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

Aquatics

The aquatic facilities are designed for year-round entertainment for those who wish to participate in free swimming and diving in one of the most outstanding physical complexes in the United States. The Aquatic Center has indoor and outdoor Olympic-size pools where one can enjoy the fellowship and relaxation that comes with aquatic sports. The pool is open Monday through Friday from 12-9 p.m., Saturday from 12-6 p.m., and Sunday from 1-6 p.m. Students and members can also enjoy the sun lamps and relaxed atmosphere found at poolside.

National, regional, and state aquatic events have been held in these facilities during the past 10 years. UT's aquatic
program is designed to meet the needs of all students who want to participate in aquatic skilled activities at no extra expense. The programs are informally organized at convenient hours after the school day is terminated. These programs vary and provide for a more wholesome and dynamic future.  
1. Skin and scuba diving is offered each quarter with NAUI certification, the most prestigious certification in the country. Equipment is furnished at no charge—safety vests, weight belts, tanks, regulators, snorkels, masks, and fins.  
2. Lifesaving is offered to those students desiring American Red Cross certification. The course is taught each quarter, and books and materials are furnished.  
3. The Water Safety Instructor course is offered fall, winter, and spring quarters with Red Cross certification. There is no charge for students, and instruction manuals are provided.  
4. Beginning swimming is offered to students, faculty, and staff during the summer quarter. This course is for those who want to improve their swimming skills or who want to swim for the first time.  
5. Beginning diving is offered to students, faculty, and staff during summer quarter. This course teaches coordination and skills on the springboard.  
6. Lifeguard is offered to students each quarter. This program provides the student with the basic skills and safety measures for prolonged periods in the water and is incorporated in the lifesaving program.  
7. Varsity swim teams practice daily throughout the fall, winter, and spring quarters. Many outstanding meets are scheduled here, and the Vols consistently place high in the NCAA Championships.  
8. A handicapped swim program is offered one quarter each year for those students who need special care in aquatic activities.  
9. Lifeguard School is offered at the Aquatic Center each quarter for specialized training of all lifeguards to be hired.  
10. Beginning swimming, intermediate, beginning and advanced diving, swimmer, junior lifesaving, and competitive classes are offered to faculty and staff children fall and spring quarter. A competitive swimming course is taught winter quarter.  
11. A Swim For Your Life program is offered students, faculty and staff throughout the whole year. Records are kept, and certificates are awarded during certain phases of the program.  
12. A Faculty Women’s swim program is offered fall, winter and spring quarters for faculty and staff women.  
13. Competitive swimming programs are offered each quarter during the student’s evening meal hour.  
Other offerings include moonlight swim parties, water basketball, water polo, special Carousel showings of aquatic competitive swimming, trampoline and mini-board during supervised activities.  
The Aquatic Center is available after hours for private and organizational parties, community aquatic programs, etc. for a fee. This facility has been viewed by visitors, professional and nonprofessional, from all parts of the world, who have said it is among the outstanding centers of the United States.  
Student Activities Office

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

The Women’s Center is the coordinating unit for women’s programs on the Knoxville Campus. It functions as a resource for all University departments and organizations in the areas of women’s programs and activities. The Center’s primary role is that of the development of programs for women, the collection of media resources about women and a comprehensive information exchange service regarding activities throughout the campus. The Women’s Center is located in 301 University Center.  
Intercollegiate Athletics for Women

This department is responsible for the organization and operation of women’s athletic teams at The University of Tennessee, Knoxville. Presently, there are five varsity teams for women—basketball, swimming/diving, tennis, volleyball, and track and field.  
The program is governed by the Association of Intercollegiate Athletics for Women with teams competing in state, regional and national tournaments sponsored by this organization. Teams abide by all NCAA rules in regards to scholarships, recruiting, safety and eligibility.  
Any full-time female undergraduate student is eligible to try out. Each team conducts open try-outs with selection being made in early fall. Additional information can be obtained by writing to the Director of Women’s Athletics, 115 Stokely Athletics Center.  
Student Health Service

Health services provided by the University are available to all student currently enrolled at the University. These services are available continuously throughout every quarter.  
The Health Service has a regular staff of physicians, nurses, laboratory and x-ray technicians of Tennessee licensure. Outpatient services in the fields of general practice, internal medicine, and psychiatry are available on a full-time basis while specialty consultants in dermatology, surgery, and gynecology are available on campus through referral by a staff physician. Care beyond that provided by the regular staff can be arranged for the student if desired. Those students requiring allergy injections may arrange to receive them at the Clinic. Charges are made for some services such as x-rays, lab tests, injections, and minor surgery.  
Regular daytime services at the Student Health Center, are known to the residence halls' staffs and campus security officers and are printed in Hill Topics, the student handbook.  
Emergency care is available during weekends, and some holidays is available through the Student Health Clinic at The University of Tennessee Memorial Research Center and Hospital except during the longer breaks between quarters. Emergency transportation (including the use of an ambulance when necessary) to either facility may be obtained through campus Security.  
Students needing total care may have this arranged by Health Service physicians, if they choose, in The University of Tennessee Memorial Research Center and Hospital. Because total care is sometimes needed, it is important for the student to have hospitalization insurance. Student group hospitalization insurance is available and may be purchased during a designated period at the beginning of each quarter.  
Health Service personnel will cooperate with students and family physicians to continue good health practices during the university career.  
Student Counseling Services Center

The Student Counseling Services Center provides services designed to help students with educational, vocational, personal and social problems.  
Professional counselors work with the student in a setting that allows confidential discussion of the student’s concerns. The student may concentrate on a specific problem or work on the general adjustment to academic life. Various groups are employed to meet the developmental needs of the student. These group settings provide the opportunity to share and learn from others and/or improve specific skills.  
Psychological tests may be used for self-evaluation and information. Also, an occupational— educational information library is maintained.  
The Center also works with the faculty and student personnel staff to develop educational programs and projects to meet the needs of various groups at the University. The Minority Affairs and Withdrawals Office, located in the Center, assists minority students through personal counseling and educational workshops, and handles the withdrawals of all students from the University. The course late drop program is coordinated by the Center.  
All students, student spouses, and to a limited extent, precollege students are eligible for counseling and services of the Center. Appointments for counseling may be made by telephone or in person at the Student Counseling Services Center at 900 Volunteer Boulevard.  
Student Rights and Responsibilities

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

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

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

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

Religious Influences

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

CHURCH CENTERS

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

Student Organizations

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

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

Social Fraternities and Sororities

The University has chapters of 27 national social fraternities and 19 national social sororities on its Knoxville campus. Membership in these fraternities and sororities is by invitation only.

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

The Sororities are:
Alpha Chi Omega
Alpha Delta Pi
Alpha Gamma Delta
Alpha Kappa Alpha
Alpha Omicron Pi
Alpha Xi Delta
Chi Omega
Delta Delta Delta
Delta Gamma
Delta Sigma Theta
Delta Zeta
Kappa Alpha Theta
Kappa Delta
Kappa Kappa Gamma
Phi Mu
Pi Beta Phi
Sigma Kappa
Zeta Beta
Zeta Tau Alpha

Other University Services, Organizations, and Cultural Opportunities

Ombudsman Office

Personnel of the Ombudsman Office in the University Center assist students in the resolution of problems encountered with any aspect of the University. The office is open during the regular working day and students are welcome to drop in at their convenience. Problems are treated confidentially and are dealt with expeditiously. The office does not replace existing structures but helps to insure their more adequate functioning and provides advice in creating ways of meeting the needs of students.

Division of International Education

The Division of International Education, established within the Office of the Vice Chancellor for Academic Affairs, serves as a central point from which the broad range of international and intercultural interests throughout the University are strengthened and related to each other. Located in 205 Alumni Hall, the Division of International Education fosters the development, expansion, and continuation of the University’s basic commitment to the international dimensions of the educational process.

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

Most UTK study abroad programs are coordinated through the Division, and new programs are planned with its assistance. Individual counseling for students and faculty by a student, work and travel abroad consultant, a reference library containing information on all aspects of overseas opportunities, a fellowship/scholarship service, free publications, and information on special programs and projects are available in the Division.

Hearing and Speech Services

The Hearing and Speech Center, located at the corner of Yale Avenue and Stadium Drive, offers complete diagnostic and therapeutic services to all University students with hearing and/or speech problems. This service is available to everyone regardless of ability to pay. The Center serves as a clinical observation and training facility for students majoring in speech and hearing disorders. It also serves as a community Hearing and Speech Center, providing a preschool for deaf children, aural rehabilitation programs for the hearing handicapped, and speech and language pathology for persons of all ages who have been professionally referred to the Center.

Services to the Physically Disabled

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

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

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

Vehicle Operation and Parking

The University of Tennessee endeavors to provide adequate traffic control and parking facilities for vehicles being operated by students and staff. Large student parking areas are located on the perimeter of the campus, and the University provides an intracampus bus system between these parking areas and the center of the campus at no cost to the student. Faculty and staff parking areas are located throughout the campus.

Each person who operates a motor vehicle in connection with attendance or employment at the University must register with the Traffic Section of the Security Department. There is no charge for vehicle registration; however, a parking permit is required for parking on University streets, parking structures or leased lots. A University Parking Authority determines the parking policy, traffic regulations, and fees, and this information is published each year in the "University Traffic and Parking Regulations." Copies of the regulations will be available at the time students and staff register their vehicles or register for classes each quarter. Additional copies may be obtained from the Traffic Section of the Security Department, located at 1115 UT Drive.

Cultural Opportunities

Both the University and the surrounding Knoxville area offer varied cultural opportunities. Exhibits, concerts, recitals, and lectures as well as plays are available throughout the year.

THEATRE

The UT Theatres, under the aegis of the Department of Speech and Theatre, present several programs of plays and films, in two theatre plants—the Clarence Brown Theatre, a $2 million plant containing excellent facilities for modern stagecraft, and the Carousel Theatre, a unique structure specially designed for arena staging, and for conversion to open-air productions in the summer.

All University students are welcome to read for parts in plays staged in all of these theatres, and to participate in other aspects of play and film presentations.

FRANK H. MCCUNG MUSEUM

The museum in Circle Park stands as a permanent memorial for the display, preservation, and study of archaeological, natural history and historical objects, as well as paintings and other works of art. The purpose of the Museum is to collect, preserve, and display research facilities for students, faculty, and staff. Permanent and temporary exhibits interpret topics in natural history, anthropology, archaeology, and fine arts; included are exhibits in the Green Memorial Room on the history of Knoxville and East Tennessee. Eleanor Deane Audiger Collection features paintings, furniture, decorative arts, and sculpture from various periods through the turn of the century. On exhibit in the Museum, this collection was presented to the University by Louis Bailey Audiger in memory of his wife.

Art

Art exhibitions of international, national, regional and local artists and craftsmen are sponsored on a regular basis by the UT Department of Art in McClung Museum Gallery, Arrowmont School of Arts and Crafts, Gatlinburg, Tennessee, displays works by faculty and students during the summer months.

Christmas Art Sale is an annual event sponsored by the Department of Art and held in the Art Gallery of the Museum in early December. 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 supplemented each year with purchases made possible through student programs. Acquisitions of quality works by area artists are emphasized by the selection committee.

Art Auction, held in Carousel Theatre each spring, is a means of raising scholarship funds for art students. Original works of leading local and national artists, as well as those of outstanding students in the art department are auctioned to the public. There is a nominal admission charge and unique door prizes are given throughout the auction.

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

UT Opera Workshop presents three performances yearly. The varied program of operatic music ranges from one-act to complete three-act operas with symphonic accompaniment, and from television opera to selected scenes from the classic repertory.

UT Symphony Orchestra plays several concerts on campus yearly as well as serving as orchestra for opera and choral productions.

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

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

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

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

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

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

CONCERTS

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

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

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

LECTURES

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

BROADCASTING

WUOT, the University's 100,000-watt stereo radio station, broadcasts 19 hours each day to all of eastern Tennessee and portions of adjacent states. WUOT is primarily a fine music station, featuring the full repertoire of the world's greatest music. Musical programs are supplemented by broadcast versions of great plays, by many documentary programs on contemporary problems, and by university-level discussion and exposition. WUOT is a member of the National Public Radio Network.

Annual Faculty Phi Kappa Phi Lectures

The Honor Society of Phi Kappa Phi sponsors two annual lectures on campus, open to the public: a lecture in the fall by a scholar recognized by the campus community and one in the spring by a distinguished professor of UT selected a year before by the Executive Committee of Phi Kappa Phi. Past and present Phi
Kappa Phi Faculty Lecturers:

Athletics

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

There are teams in football, basketball, cross country, indoor and outdoor track and field, baseball, swimming, wrestling, tennis and golf. Intercollegiate games are played according to the rules of the National Collegiate Athletic Association (NCAA) and the Southern Intercollegiate 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 Tennessee Collegiate Men's Sports Federation (TCWFS) and the Association of Intercollegiate Athletics for Women (AIAW). Eligibility for participation is determined by TCWFS, AIAW and the University faculty.

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

NEYLAND STADIUM

Neyland Stadium, the University's football stadium, was named in memory of the late General Robert R. Neyland, long-time football coach and athletics director. Shields-Watkins Field, the football field, is named in honor of William S. Shields, former member of the University Board of Trustees, and his wife.

The stadium, built and developed by the Department of Athletics over a period of years, can presently accommodate 80,000 spectators.

STOKELEY ATHLETICS CENTER

The hub of the University's sports program is Stokeley Athletics Center, which houses a 13,000-seat basketball arena and a fine indoor track. Also located here are classrooms, offices, dressing rooms for all sports, and a Hall of Fame room.

OTHER FACILITIES

The University is proud, too, of its Tom Black Track, host to regional and national meets and to Olympic specifications. The Student Aquatic Center, with its indoor and outdoor Olympic-size pools, separate diving pools, water polo court, sauna baths, and extensive exercise facilities, is of interest to many on the campus. Hudson Field, recently remodeled baseball field and stadium seating 1,500 fans in addition to providing dugouts and press box facilities, is one of the best complexes in the conference. Also, new tennis courts afford an excellent vantage point for spectators.

Student Publications

A number of student publications are printed during each school year to serve as sources of information for new students, to report the many events of interest to the campus community, and to record year's activities.

- The Daily Beacon, a student newspaper, is published annually by the Panhellenic Council, to provide information about the sororities at the University.
- The Phoenix, quarterly literary magazine, is sponsored by The University of Tennessee Student Publications Board.
- Other student publications are: Sorority Scope, published annually by the Panhellenic Council, to provide information about the sororities at the University.
- The Torchbearer, published by the Interfraternity Council, to acquaint male students with the fraternities.
- The Tennessee Engineer, published by students and faculty of the College of Engineering, to inform students and alumni of progress in the engineering field.
- The Tennessee Farmer, published quarterly by the College of Agriculture Student-Faculty Council, for those students and alumni interested in developments in agriculture.
- The Tennessee Law Review, published quarterly by students of the College of Law.

Traditions

Traditions play an important part in the life of a University student by recalling the history and heritage of the past, and by setting examples for future achievements. For instance, the Volunteer Symbol, spirit of the state and the University, is ever present during the student's campus life. This traditional symbol admonishes would-be leaders to hold their "torch" high, shining themselves to give light to others.

It is this symbolic "torch" which first gives the new student a glimpse of the many traditions at the University.

But traditions at the University may be lighthearted as well as serious. Among the less serious traditions are three annual all-student productions which have become part of the University's life. These are the noise and bustle of Homecoming, the lilt and melody of All-Sing, and the spangle and wit of Carnicus.

Homecoming is a time when former students return to the campus to visit and to renew old friendships. This is also the time when alumni have an excellent opportunity to interact and see what students are saying and doing. All-Sing, begun in the early 1930s to encourage interest in harmony groups, features outstanding singing groups representing campus organizations.

Carnicus, which began as a parade and presentation of a Carnival Queen, has evolved through the years to the present form of competitive skits put on by student organizations. The entertainment event features skits chosen for their humor, continuity, and perfection of presentation.

The Memorial Research Center and Hospital

The University of Tennessee Memorial Research Center and Hospital is a modern medical facility located just off the Alcoa Highway in Knoxville. The 520-bed general hospital provides patient care and training programs for interns, residents, medical students, nurses, dietitians, medical technologists, x-ray technicians, and ancillary hospital personnel. Out-patient services are furnished to both area residents, UTCHS and UTK students. A modern medical library is available for student and physician use. The Research Center conducts an active and vigorous research program that centers on hematological and oncological problems. Excellent facilities for animal and laboratory experimentation are available. Postgraduate studies are pursued in cooperation with other-life-science departments of the University. Special clinical investigations and the testing of experimental drugs involve both research and hospital staff.

A continuing seminar and conference program presented by hospital and research staff and visiting lecturers serves to acquaint local medical and life-science workers with the most recent scientific developments.

University Publications

The various colleges, departments, and continuing education units composing the University issues publications dealing with their educational, research, and public service programs. In addition, several publications are issued on a University-wide basis.

The University of Tennessee Record includes the General Catalog, Graduate Catalog, Report on Research and Publications, the President's Report, the Library Development Report, and other publications of a record nature. The Torchbearer, issued four times a year, contains news, pictures, and other information about UT's teaching, research, and continuing education activities and is distributed to alumni, faculty and staff, and friends of the University. Other publications on programs of the institution may also be issued on a University-wide basis in response to requests of the various colleges, departments, and continuing education units. All of the publications are for sale.

University publications are under the general supervision of The University of Tennessee, Knoxville, Publications Committee appointed by the chancellor of the University. The operating office for this committee is the Publications Service Bureau, located in the Communications and University Extension Building.
Technical services of the Publications Service Bureau are offered to all colleges, departments, and other units of the University needing assistance with publication design, artwork, copyreading, editing, proofreading, and preparing specifications for printers. These services assist University departments in issuing the highest quality of publications possible within their printing budgets.

Learning Research Center
Recognizing that the learning process is exceptionally complex, the University established the Learning Research Center in 1964.

Its primary purpose is to encourage faculty members to utilize the results of research in creating arrangements and conditions for learning.

The Learning Research Center publishes the Teaching-Learning Issues quarterly which circulates throughout the University system and on other campuses across the nation.

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

Student Government Association
Composed of the Student Senate, the Academic Council, and the Graduate Student Council, the Student Government Association is the governing body of the students at UTK. Some objectives of the S.G.A. are to provide a vehicle for responsible and effective student participation in the organization and operation of student life and to promote the recognition of student rights and responsibilities.

The president of the S.G.A. serves as chairperson of the Student Senate while the vice president administers the student services staff (including the Legislative Interest Group, communications staff program, and Voter Registration). Student Senate members are elected in the spring quarter to represent geographical areas of the campus as well as various student organizations. The Academic Council and Graduate Student Council representatives are elected from the academic colleges and graduate student programs, respectively. Offices of the S.G.A. are located in room 341 of the University Center.
The Graduate School

L. Evans Roth, Vice Chancellor for Graduate Studies and Research
Margaret N. Perry, Dean for Graduate Studies
Carl O. Thomas, Dean for Research

The University of Tennessee, Knoxville offers a graduate program which is one of the largest and most comprehensive to be found in the nation. Courses of study leading to master's degrees are available in almost all colleges and schools. The University's present doctoral programs were initiated about 40 years ago and have expanded rapidly, with doctoral degrees presently offered in 47 areas. Additional fields are being added as warranted by expanding faculty and facilities.

The principal aim of the Graduate School is that of education beyond the bachelor's level through advanced courses, seminars, and research. The total resources of the University are made available to graduate students through its various colleges, schools, and special services. Each student is expected to take full advantage of the opportunities offered in the field of study and to maintain a high quality of achievement in the various phases of the program. To assist the student, certain procedures and regulations are described in subsequent paragraphs. These are formulated by the Graduate Council and administered by the Vice Chancellor for Graduate Studies and Research. The program of an individual student may be quite flexible but should still remain within the framework of the degree programs approved by the Council. Each student should be acquainted with the rules and procedures, as well as with any special requirements of individual colleges or departments.

General Information

Knoxville campus. The main and most varied offerings of the Graduate School are available at the Knoxville campus where advanced study at both the master's and doctoral level is provided in almost every college. More limited opportunities may be found at other locations as indicated below. Complete information concerning the Graduate School may be found in the Graduate Catalog, copies of which may be obtained by writing the Vice Chancellor for Graduate Studies and Research, The University of Tennessee, Knoxville, Tennessee 37916.

The University of Tennessee Space Institute. Opportunities for graduate study and research leading to the degrees of Master of Science and Doctor of Philosophy in certain areas of engineering and science are offered by the Space Institute located adjacent to the Arnold Engineering Development Center, Tullahoma, Tennessee. At the present time, graduate degree programs are available with a major in aerospace engineering, aviation systems, computer science, electrical engineering, engineering administration, engineering science, mathematics, mechanical engineering, metallurgical engineering, and physics. In addition to the fundamental academic work characteristic of each discipline, research opportunities and supporting interdisciplinary course work are available to permit specialization in many aspects of atmospheric and space flight such as subsonic to hypersonic aerodynamics; aerospace vehicle design; control and guidance; modern materials and structures; propulsion systems; aircraft noise and sonic boom; flight simulation; avionics; plasmadynamics; flow diagnostics including spectroscopic and electrooptic means; and systems management. Work is also in progress in remote sensing and magnetohydrodynamic power generation of coal utilization. Course work and research work in related areas of environmental pollution control, earth resources, energy conversion, materials and systems and simulation are also available. The research personnel and facilities of the Institute and those available at the Arnold Center through appropriate contractual arrangements provide an outstanding opportunity for meaningful research in these and other areas. Students who enroll at UT Knoxville must be admitted to the Graduate School of the University of Tennessee, Knoxville. Further information concerning the Institute may be obtained from the Dean, The University of Tennessee Space Institute, Tullahoma, Tennessee 37388. Application forms and an announcement of the Institute's programs are available upon request.

Kingsport University Center. The University of Tennessee offers a Kingsport resident graduate programs in science, engineering, and business at both the master's and doctoral levels. The program is operated within the policies set by the Graduate Council of the University of Tennessee and is administered by the Vice Chancellor for Graduate Studies and Research. It is coordinated with the graduate and undergraduate offerings of East Tennessee State University.

Students who enroll in this program must be admitted to the Graduate School of the University of Tennessee, Knoxville. Information and appropriate application forms may be obtained from the Director, Kingsport University Center, The University of Tennessee, University Boulevard, Kingsport, Tennessee 37660.

Oak Ridge Resident Graduate Program. The University of Tennessee offers graduate study programs at Oak Ridge, with work leading to the master's degree in industrial management, industrial education, and statistics; and the master's and doctoral degrees in the areas of engineering, mathematics, and physical and biological sciences. Courses are given in the late afternoons, evenings and Saturdays, with research facilities provided by and used in cooperation with the Oak Ridge Associated Universities, and the Union Carbide Corporation Nuclear Division.

This program is supported under a
subcontract with Oak Ridge Associated Universities with principal support coming from Union Carbide Nuclear Division. The University of Tennessee is one of the 43 colleges and universities which sponsor ORAU, a nonprofit education and research management corporation.

Information and applications to the Graduate School may be obtained by writing the Director, University of Tennessee Graduate School, Post Office Box 17, Oak Ridge, Tennessee 37830.

Radiation Biology. A graduate major in the field of radiation biology leading to the M.S. and Ph.D. degrees is offered through the Institute of Radiation Biology. On the Institute staff are scientists from the Departments of Biochemistry, Botany, Chemistry, Microbiology, Physics, Zoology, the Memorial Research Center, and the UT-AEC Agricultural Research Laboratory of The University of Tennessee, the Biology and Ecology Physics Divisions of the Oak Ridge National Laboratory, and the Medical Division of Oak Ridge Associated Universities. Areas of specialization include biochemistry, biophysics, cytology, ecology, electron microscopy, embryology, entomology, genetics, hematology, immunology, microbiology, molecular biology, oncology, parasitology, pathology, physiology, and tissue culture.

School of Social Work. The University of Tennessee offers a fully accredited two-year program leading to the degree of Master of Science in Social Work, with programs in Nashville, Knoxville, and Memphis. The program is designed to prepare personnel for positions in family and child welfare agencies, psychiatric social work, school social work, medical social work, social group work, social welfare administration, community organization, corrections, rehabilitation, and service to the aging. Professional skills may be concentrated in the areas of social work treatment and social welfare administration and planning.

Information regarding admission and programs may be obtained from the Dean of the School of Social Work, The University of Tennessee, 2014 Lake Avenue, Knoxville, Tennessee 37916.

Chattanooga Graduate Engineering Program. The University of Tennessee, Knoxville, offers a program of graduate work leading to the master's degree in the area of engineering. Courses are given at The University of Tennessee at Chattanooga in the late afternoons and evenings. Students who enroll in this program must be admitted to the Graduate School of The University of Tennessee, Knoxville.

Information concerning this program may be obtained from the Director, Chattanooga Graduate Engineering Program, The University of Tennessee at Chattanooga, Chattanooga, Tennessee 37401.

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### Majors and Degrees Available

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### Admission Tests Required
- G.R.E.
- G.M.A.T.

### Letter of Recommendation
- 3-Departmental rating forms
- 3-Departmental rating forms
- 3-Former professors
- 3-Former professors
- Obtain forms from department
- Obtain forms from department
- Obtain forms from department
- Obtain forms from department
- Obtain forms from department

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The University of Tennessee at Nashville. Opportunities for graduate study leading to the degree of Master of Science in areas of civil engineering, engineering administration, and industrial engineering are offered by The University of Tennessee, Knoxville, and are administered by the Vice Chancellor for Graduate Studies and Research.

Students who enroll in these programs must be admitted to The University of Tennessee, Knoxville, Graduate School. Information and appropriate forms may be obtained from the Registrar, The University of Tennessee at Nashville, 10th and Charlotte, Nashville, Tennessee 37203.

The University of Tennessee—Oak Ridge Graduate School of Biomedical Sciences. The University provides programs leading to the M.S. and Ph.D. degrees in various areas of biomedical sciences. Graduate students have the opportunity to study and to do research in conjunction with the Biology Division of the Oak Ridge National Laboratory.

Information concerning this program is available from the Director, The University of Tennessee—Oak Ridge Graduate School of Biomedical Sciences, Biology Division, Oak Ridge National Laboratory, Box Y, Oak Ridge, Tennessee 37830.

FELLOWSHIPS AND ASSISTANTSHIPS
The Milton A. Smith Graduate Fellowships for full-time studies at The
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*All M.S. and PH.D. applicants obtain special application form from Associate Dean, College of Home Economics.

2-Former professors
3-Departmental rating forms
2-Former professors
3-Departmental rating forms
2-Former professors
3-Former professors
3-Former professors
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2-Former professors
### Majors and Degrees Available

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<tr>
<td>School of Social Work (Memphis, Nashville and Knoxville) Social Work</td>
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1. Offered only at UT Space Institute.
2. Offered also at off-campus locations.
3. Department doctoral option offered under the major of home economics.
4. Interdisciplinary option offered in each department.
5. Ph.D. applicants only.
6. American applicants only.
7. Ed.D. applicants only.
8. Ed.S. applicants only.
9. International applicants only.
10. Interdisciplinary Ph.D. applicants only.

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University of Tennessee, Knoxville are awarded on the basis of ability and without regard to the field of study of the candidate. Monthly stipends are provided, and tuition and maintenance fee are paid by the University. Successful applicants need better than an overall 3.0 grade point average and high scores from the Graduate Record Examination or the Graduate Management Admission Test. Application packets are available in the Graduate Office from November 1st through February 1st. Completed applications, including all required supporting material, must be submitted to the Assistant Director of Graduate Admissions by February 15th.

Graduate assistantships and additional fellowships are offered through many departments of the University. The stipends usually provide for payment of tuition and maintenance fee by the University. Information concerning these types of assistance may be secured by writing to the head of the department in which the student expects to study.

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**Graduate School of Biomedical Sciences (193)**

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

### Full-Time Faculty

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

Associate Professors:
- F.H. Gaertner, Ph.D. Purdue; F.D. Hamilton, Ph.D. Pittsburgh.

Assistant Professor:
- N.W. Revis, Ph.D. University of Glasgow (Scotland).

Research Assistant Professor:
- C.T. Hadden, Ph.D. Washington.

The University of Tennessee—Oak Ridge Graduate School of Biomedical Sciences, established in 1966 under the joint auspices of The University of Tennessee and the Biology Division of Oak Ridge National Laboratory, is a novel venture in scientific graduate education. The National Laboratory, one of the three installations operated at Oak Ridge by Union Carbide Corporation for the Department of Energy, is a well known center of basic research in biology, chemistry, physics, mathematics, metallurgy, health physics, and ecology. The school utilizes the staff and facilities of this large federal research institute, thus bringing directly into the mainstream of full-time graduate study in the life sciences the talent and experience of that staff, as well as the most advanced research methods.

The program of study, which incorporates a high faculty-to-student ratio, is based on intensive graduate courses supplemented by tutorial instruction, participation in a wide variety of seminars, and a heavy emphasis on research training and independent study. The program encourages and requires students, through individual initiative and self-discipline, to pursue graduate studies to the limits of their abilities.

The school is not departmentalized and, apart from certain basic requirements, each student’s curriculum is planned to meet individual needs, with the aim of giving: (1) strength in the basic sciences; (2) perception of the biomedical sciences as a whole; and (3) experience and training in a chosen specialty.

The four research areas available for
master’s and Ph.D. thesis work are
biochemistry, biophysics, carcinogenesis,
cell biology, genetics, and physiology.
Included are such subjects as
immunology, protein and enzyme
chemistry, nucleic acid chemistry,
cytology, radiation and environmental
biology, virology, developmental biology,
experimental pathology, microbial and
mammalian genetics, mutagenesis, and
problems of aging.

The Graduate School of Biomedical
Sciences publishes supplementary
information in addition to the regular
Graduate Catalog. All inquiries concerning
admission should be addressed to:
Director, The University of Tennessee
—Oak Ridge Graduate School of
Biomedical Sciences, Biology Division,
ORNL, P.O. Box Y, Oak Ridge, Tennessee
37830.

Courses

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| 6210       | Protein Chemistry and Enzyme
Mechanisms (3) |
| 6220       | Enzyme Regulation and Kinetics (3)     |
| 6240       | Chemistry and Metabolism of Lipids (3) |
| 6270       | Viral Carcinogenesis (3)               |
| 6280       | Chemical and Physical Carcinogenesis (3) |
| 6290       | Cancer Biology and Biochemistry (3)    |
| 6300       | Mutagenesis (3)                        |
| 6510-20-30-40 | Advanced Topics in Biomedical Sciences (3, 3, 3) |

Engineering Administration

COMMITTEE:
H.L. Loveless, Chairman
J.F. Bailey
F.A. Chamblin
E.C. Huechschnann
J.R. McMillan
R.E. Shrievs
W.G. Sullivan

A program of study leading to the
degree of Master of Science with a major
in engineering administration is offered.
This program is aimed at providing
education for graduate engineers in the
organization and direction of work in
engineering functions, at a level which
requires understanding of such areas as
marketing, finance, and industrial
relations. It should be emphasized that
this is an engineering program, aimed at
preparing individuals for line management
positions in construction, design,
development, manufacturing, etc. where
both technical and non-technical factors
exert significant influence on the success
of a given activity. The program does not
provide the opportunity for in-depth study
of any of the traditional areas of business
administration, and students with such
interests are advised to consider graduate
programs available in the College of
Business Administration.

To be admitted to the Graduate School
as a potential candidate for a master’s
degree with a major in engineering
administration, the applicant must submit
reasonable evidence of ability to pursue
graduate studies at an acceptable level of
performance. In general, the applicant
must have graduated from a recognized
undergraduate institution in engineering or
science with a satisfactory grade point
average. In addition, applicants must satisfy
one of the following experience
requirements: (1) at least two years of
engineering experience after graduation if
a full-time student or (2) current
employment in engineering work if a part-
time student.

THE MASTER’S PROGRAM
Minimum requirements for the master’s
degree are the satisfactory completion of
the following courses:

1. An Engineering Core, 27 hours of
graduate credit consisting of Engineering
Administration 5900, at least three courses
chosen from Industrial Engineering 4150,
5110, 5520, and 5710, and a complement
of engineering courses, normally selected
from the student’s undergraduate major
department or from courses of other
departments pertinent to this program.
2. A Business Core, 15 hours of
graduate credit consisting of
Accounting 5810, Finance 5050, Marketing
5050, Management 5130 and
Transportation 5210.
3. General Electives, nine hours of
graduate credit chosen from computer
science, economics, engineering,
management science, mathematics,
psychology, statistics, and other program-
related disciplines.

The program requirement totals 51
hours of graduate course credit. No thesis
is required. A final oral and written
examination must be passed on the work
offered for the degree. Course
prerequisites for the program are
Accounting 2110, Computer Science 3150,
Industrial Engineering 4520, and Statistics
3450 or their equivalents. None of these
prerequisites may be counted as part of the
51 hours of credit offered for the
degree. These course prerequisites will
be waived upon presentation of evidence
of competency in the course subjects.
Other prerequisite courses may be
required, depending upon the student’s
background and the electives chosen.

COURSES

5002 Non-Thesis Graduation Completion (3-15)
5900 Project in Engineering Administration (3)

Environment Center

Director:
J.H. Gibbons, Ph.D. Duke.
Associate Director:
R.A. Bohm, Ph.D. Washington (Missouri).

The Environment Center was created to
encourage and support University faculty
and students to become involved in
interdisciplinary studies to provide
alternative solutions to problems related to
energy and the environment. The Center
provides assistance to faculty interested in
developing research and public service
projects, manages research and
development projects that involve several
disciplines, and assists Tennessee
government and industry in specific
problems related to energy and
environment. It is funded through the
Statewide Consumer Education Program,
especially in developing material.

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

The Center is operated by The
University of Tennessee, Knoxville
through the Office of the Vice Chancellor
for Graduate Studies and Research.
Graduate School of Library and Information Science (620)
Ann E. Prentice, Director


Assistant Professors: J.J. Knightly, Ph.D. Texas; J.M. Pemberton, Ph.D. Tennessee; G.M. Sinkankas, Ph.D. Pittsburgh.

The Graduate School of Library and Information Science provides a library education program at both the graduate and undergraduate levels, leading to the preparation of librarians for work in all types of libraries. The program is to help meet the library manpower needs of the state of Tennessee. The programs of study of this School include a graduate curriculum leading to the degree of Master of Science in Library Science and an undergraduate program which allows for a minor in either the College of Education or the College of Liberal Arts.

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

The minimum requirements for a full-time position as school librarian in the state of Tennessee (both elementary and secondary) can be met through fulfilling the requirements for teacher certification and completion of the following library courses: 3510, 3520, 3530, 4140, 4150, 4240, 4330, and 4750.

The Graduate Program

The goal of the program is to prepare graduates to function effectively in libraries and information centers. The program is designed to: (1) enable students to examine critically the role and function of libraries and information centers in our society, and to define and redefine that role as the needs of society demand; (2) enable students to understand and use the concepts and procedures related to the selection, acquisition, organization, and dissemination of knowledge; (3) enable students to understand and apply the principles of management to the library and information center; (4) enable students to assume individual and collective responsibility for the well-being and development of their profession and of professional service; (5) enable students to make informed assessments and decisions regarding various career opportunities in libraries and information centers. For further information, write for a Graduate Catalog.

UNDERGRADUATE

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

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

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

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

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

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

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

4750 Utilization of Instructional Media (3) (Same as Educ. C & I 14750 and Vocational-Technical Education 4750.)

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5110 Problems in Library Science (3)

5120 Problems in Library Science (3)

5130 Problems in Library Science (3)

5140 Research Methods in Library Science (3)

5200 Subject Reference and Bibliography (3)

5210 Sources and Services for the Social Sciences (3)

5220 Sources and Services for the Natural Sciences (3)

5230 Sources and Services for the Humanities (3)

5240 Organization of Library Collections II (3)

5250 Government Publications I (3)

5260 Government Publications II (3)

5270 Legal Bibliography (3)

5300 Library Management (3)

5310 Library Systems and Services (3)

5320 Library and Information Networks (3)

5330 Academic Libraries (3)

5350 School Libraries (3)

5360 Technical Libraries and Information Centers (3)

5370 The Library in the Community (3)

5380 Seminar: Academic, Public, School or Special Libraries (3)

5400 Library Facilities (3)

5500 Principles of Materials Selection (3)

5510 Multimedia Resources in Libraries (3)

5520 History of Books and Printing (3)

5530 Contemporary Publishing (3)

5540 Special Collections—Archives and Rare Books (3)

5600 Reading Guidance for Children and Young People (3)

5610 Mass Communications and the Library (3)

5620 Traditional Literature and Oral Narration (3)

5630 Critical History of Children's Literature I (3)

5640 Critical History of Children's Literature II (3)

5691 Production and Use of Audiovisual Materials (3)
Graduate School of Planning (782)

J.A. Spencer, Director

Graduate Education in Planning

The curriculum is organized on a basis of six quarters, or 72 credit hours, and provides the student with core courses in planning theory, methods, and techniques, and also takes advantage of offerings at The University of Tennessee in related fields such as government, economics, geography, civil engineering, and sociology.

The course of study ordinarily requires two years, with an optional work internship during the summer between the two years. Planning courses as well as related courses will be offered during the summer period. This serves the needs of those planners now in the field who wish to acquire their professional degree but who can spare only the minimum amount of time from their jobs because of financial or family considerations.

Entering students follow a program of courses which provides education in the basic elements of planning. These include studies in theory, history, analytical methods, design, and legislation, as well as related courses in government, geography, sociology, and economics.

Students are permitted to pursue particular interests through the choice of electives approved by the Graduate School of Planning. Practice in research and analysis on a particular planning problem or topic is obtained through the preparation of a thesis or major study option. A comprehensive written examination on previously taken graduate coursework will be given to students who have finished their first year of study and before they have finished their second year of study. An oral examination will be given on the thesis subject prior to graduation.

Faculty

Core planning courses are taught by the full-time faculty of the Graduate School of Planning. Related courses are taught by other specialists drawn from the University faculty. In most instances these are senior faculty members. In addition, the services of experienced professional planners in TVA and other public and private organizations are called upon to broaden the experiences of the students' understanding. A variety of outside speakers and seminar leaders provides insight into particular problems of significance to planners.

UNDERGRADUATE

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

GRADUATE

5000 Thesis
5002 Non-Thesis Graduation Completion (3-15)
5005 The Planning Process (3)
5040 Communications for Planners I (1)
5045 Communications for Planners II (1)
5050 Communications for Planners III (1)
5100 Theory of Planning (3)

Program in Radiation Biology (844)

Daniel Billen, Director

A graduate major in the field of radiation biology is offered through the Institute of Radiation Biology. This is a program crossing both departmental and institutional lines. Included on the Institute staff are certain scientists from the Departments of Biochemistry, Botany, Chemistry, Microbiology, Physics, and Zoology, the Memorial Research Center Hospital and the Comparative Animal Research Laboratory of The University of Tennessee, the Biology and Environmental Sciences Divisions of the Oak Ridge National Laboratory, and the Medical Division of Oak Ridge Associated Universities.

Formal courses in this program are offered mainly on the Knoxville campus. Thesis research may be carried on either at the University or at one of the Oak Ridge laboratories. Problems selected for thesis research shall involve the interaction of radiations or long-lived fission products and radiomimetic chemicals with biological systems, at the molecular, cellular, organismal, or ecological level of complexity. Areas of radiation specialization currently include photobiology, environmental, microbial, botanical, and biochemical and biophysical radiobiology.

Courses

5000 Thesis
5300 Graduate Research Participation (3-9)
The Graduate School of Social Work (905)

Ben P. Granger, Dean
Betty J. Clckley, Associate Dean
David P. Fauri
Branch Director, Nashville
Roger M. Nooe
Branch Director, Knoxville
M. Kate Mullins
Branch Director, Memphis

Professors:
B. P. Granger (Dean), Ph.D. Brandeis;
M. H. Bloch, M.S. S. Ohio State; R. C. Bonovich,
D. S. W. Washington University (St. Louis);
G. W. Fryer, Ed. D. Columbia; B. Ochoa
(Emeritus), M. S. Western Reserve; A. J. Robins,
M. S. W. Carnegie Institute of Technology;
S. W. Spencer (Emeritus), M. S. New York School of
Social Work; M. A. Stites (Emeritus), A. M.
Pennsylvania.

Associate Professors:
L. M. Beasly, D. S. W. Denver; B. J. Clinkley,
Ph. D. Brandeis; C. T. Cruthirds, B. S. W. Tulane;
R. W. F. D. C. W. City University of New York;
D. P. Fauri, D. P. A. Syracuse; L. H. Gangaware,
M. S. W. Columbia; D. L. Ingle, M. S. Certificate
in Psychiatry, Western Reserve;
R. A. Looman, A. M. Minnesota; E. K. Marshall,
Ph. D. St. Louis; G. McLaman, M. S. W. W. W. Tennessee;
M. A. Mullins, Ph. D. Chicago;
R. M. Nooe, D. S. W. Tulane; J. D. Orten, M. S. W. W.
Washington; B. B. Bowden, Ph. D. Arizona;
R. W. Sellards, M. S. W. Michigan; P. F. Whitmore,
M. S. W. Tennessee; P. G. Zarbock, M. S. W. Wisconsin.

Assistant Professors:
W. J. Bell, M. S. W. Michigan; A. R. Ford, M. S. W. Atlanta;
R. K. Hampton, M. S. W. Pennsylvania;
C. F. Hairson, M. S. S. A. Case Western Reserve;
W. D. Harrison, Ph. D. Minnesota; T. Haynes,
Ph. D. New York University; M. J. Holosko,
M. S. W. Toronto (Canada); J. F. Jankevic, M. S. W. W. Arkansas;
D. C. Johnston, M. S. W. California
(1972); A. E. Moses, M. S. W. California;
N. J. Taylor, M. S. W. Smith College;
S. A. Webster, M. A. Wisconsin; H. A. Wilson,
M. S. S. A. Western Reserve.

*On leave

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

The School of Social Work has as its
primary objective the education and
training of persons for leadership in the
social welfare profession and the social
work practice community. Leadership
roles include positions in social welfare
administration, social planning and policy
development, and positions as treatment
team leaders, supervisors, consultants,
and expert practitioners.

Central to professional leadership are a
commitment to the values and goals of the
profession and a developed capacity for
self-awareness and self-discipline. The
experience of a graduate professional
education builds commitment, and the
school’s program guides students into

independent, analytical thought and
prepares them to use their skills and
knowledge to effective purpose.

The School of Social Work recognizes
and enjoys the challenges of cultural
pluralism in society and encourages
applications for admission from minority
group members. Through the planned
inclusion of significant and pertinent racial
and ethnic content in the curriculum, the
School provides students with the
educational background needed to take
creative roles in the social work
profession’s efforts toward the elimination
of racism and such other social ills as
poverty, crime, neglect, and social
injustice.

A special bulletin describing the
facilities, admission, fees, and degree
requirements is obtainable from The
School of Social Work, 2014 Lake Ave.,
Knoxville, Tennessee 37916.

Courses
5000 Thesis
5002 Non-Thesis Graduation Completion (3-15)
5070 Social Work Research I (3)
5080 Social Work Research II (2)
5081 Evaluative Research in Social Work (2-3)
5082 Practicum in Social Work Research (3-4)
5083 Directed Readings in Research (2-4)
5090 Special Problems in Social Work (2-4)
5110 Social Welfare Policy and Services I (3)
5120 Social Welfare Policy and Services II (3)
5130 Social Policy Analysis (2-3)
5161 Social Welfare Seminar (2-3)
5210-20 Human Behavior and Social Environment I and II (3, 3)
5290 Special Accelerated Program in Social Work (15)
5310 Human Behavior and Social Environment (2-3)
5311 Speculative Perspectives on the Human Condition (2-3)
5312 Psychopathology and Social Deviance (2-3)
5313 Deviant Behavior of Children and Youth (2-3)
5314 Comparative Theories of Personality (2-3)
5315 Human Sexual Problems (2-3)
5316 Mental Health and Employment (2-3)
5410 Social Work Practice I (3)
5420 Social Work Practice II (3)
5440 Family Therapy in Social Work Practice (2-3)
5441 Transactional Analysis (2-3)
5442 Short-Term Treatment (2-3)
5443 Seminar on Behavior Therapy (2-3)
5444 Social Work Practice with the Poor (2-3)
5490 Social Work Treatment with Individuals and Families (3)
5470 Contemporary Treatment Modalities: Individual and Family (2-3)
5560 Social Work Treatment with Groups (3)
5561 Interpersonal Skill Development (2-3)

*Alumni Distinguished Service Professor
Associate Professors:
S.N. Chaudhuri, Ph.D. Indian Institute of Science; F.D. Collins, Ph.D. California (Berkeley); C. Colorado State; H.W. Cramer, Ph.D. Yale; W.A. Dunnill, Ph.D. Florida; T. Feagin, Ph.D. Texas; J.H. Hansen, Ph.D. Missouri; D.R. Keeler, Ph.D. Florida; R.D. Kimberlin, M.S. Tennessee; K.R. Kimble, Ph.D. Ohio State; T.H. Keen, Ph.D. Ohio State; M. Kuroaka, Ph.D. California Institute of Technology; J.R. Maus, Ph.D. North Carolina State; T.H. Moulton, Ph.D. Tennessee; L.J. Pinn, Ph.D. Florida.

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

The Space Institute was initiated to interface University faculty research with the Arnold Engineering Development Center of the United States Air Force. Located at Tullahoma, Tennessee, the Space Institute offers graduate degree programs with majors in aerospace engineering, aviation systems, computer science, electrical engineering, engineering administration, engineering science, mathematics, mechanical engineering, and physics. In addition to the fundamental academic work characteristic of each discipline, research opportunities and supporting interdisciplinary course work are available to permit specialization in many aspects of atmospheric and space flight such as aerodynamic aerodynamics, aerospace vehicle design, control and guidance, modern materials and structures, propulsion systems, aircraft noise and sonic boom, flight simulation, avionics, plasmanodynamics, flow diagnostics including spectroscopic and electrooptic means and systems management. Work is also in progress in remote sensing and magnetohydrodynamic power generation of utilizing coal. Course and research work in related areas of environmental pollution control, earth resources, energy conversion, materials and systems and simulation are also available. The research personnel and facilities of the Institute and those available at the Arnold Center through appropriate contractual arrangements provide an outstanding opportunity for meaningful research in these and other areas. Students who enroll at UTSI must be admitted to the Graduate School, University of Tennessee, Knoxville. Further information concerning the Institute may be obtained from the Dean, The University of Tennessee Space Institute, Tullahoma, Tennessee 37388.

The Institute is operated by The University of Tennessee in close cooperation with numerous departments at The University of Tennessee, Knoxville and the office of the Vice Chancellor for Graduate Studies and Research.

Aviation Systems (169)

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

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

Transportation Center

Director:
W.A. Goodwin, M.S.C.E. Kentucky.

Associate Directors:
M.S. Bronzini, Ph.D. Pennsylvania State; R.A. Mundy, Ph.D. Pennsylvania State.

Assistant Directors:
D.H. Jones, M.S. Tennessee; R.L. Perry, M.S. Tennessee; P.R. Tutt, M.S. Texas.

Assistant to Director:
C.P. Mauney, Ph. D. Tennessee.

The Transportation Center performs four main functions: (1) managing interdisciplinary transportation projects for the University, (2) managing transportation projects for the Tennessee Department of Transportation, (3) managing highway safety projects for the Governor’s Highway Safety Program, and (4) providing public service activities in transportation throughout the state. In performing these functions, the Transportation Center works extensively with various colleges and departments, organizations, and campuses of The University of Tennessee.

The Center conducts research in all modes of transportation. Current research includes transportation management, railroads and waterways, urban goods movement, airport ground transportation, transportation brokerage, social service transportation, ridesharing, transit, legislation, diagnostic vehicle inspection, highway safety, tunnel construction and ventilation, archaeological exploration, highway construction, and environmental impacts.

The Center is operated through the Office for Graduate Studies and Research. The Center’s main office is at The University of Tennessee, Knoxville with a satellite office in Nashville.

Water Resources Development (991)

William F. Brandes, Director, Water Resources Research Center

Specific requirements for admission to this program are a bachelor’s degree in law, engineering, or one of the physical or social sciences from an accredited college or university, and evidence of ability to do work of graduate quality, as ascertained by undergraduate records. Also considered will be work record, if any, and letters of recommendation. The general policies and requirements of the Graduate School apply to this program.

The degree of Master of Science requires 45 quarter hours of graduate studies, including nine hours of thesis work. The exact curriculum of each student is decided in consultation with a faculty committee, depending on the student’s background and field of interest. If the student’s undergraduate work includes, in the opinion of the faculty committee, sufficient training and education in one or more of the required courses, the student may substitute other elective courses. Electives will consist of advanced work in the student’s specialty or in a related field.

UNDERGRADUATE
3410 Principles of Ground Water Geology (3) (Same as Geology 3410.)
3420 Geohydrology (3) (Same as Geology 3420.)
3565 Introduction to Public Administration Organization and Management (4) (Same as Political Science 3565.)
4110 Managerial Economics (3) (Same as Economics 4110.)
4810 Water Law (3) (Same as Environmental Engr. 4810 and Law 8875.)

GRADUATE
5000 Thesis
5130 Planning and Research Methods I (2)
5140 Planning and utilities (3)
5340 Hydrology of Agricultural and Forest Lands (3)
5410-20-30 Interdisciplinary Seminars (3, 3, 3)
Institute of Agriculture

Webster Pendergrass, Vice President
B.H. Pentecost, Assistant Vice President

The Institute of Agriculture traces its history to 1869 when the University was designated as Tennessee’s Federal Land-Grant Institution. Under terms of the Federal Land-Grant Act, the University was enabled to offer instruction in agriculture and the mechanic arts for the first time. Since 1869, agricultural programs at the University have been expanded to include research for the development of new knowledge and extension for dissemination of such knowledge to rural people. Thus the Institute of Agriculture has come to include the work of four main divisions: College of Agriculture, College of Veterinary Medicine, Agricultural Experiment Station, and Agricultural Extension Service.

Agricultural Experiment Station

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

The Agricultural Experiment Station was established in 1887 by an Act of Congress known as the Hatch Act. The purpose of the Experiment Station is the promotion of practical agriculture through fundamental and applied research on all problems affecting farmers of the state. For example, there are research projects dealing with the development of new and improved varieties of farm and garden crops, the development of improved methods for the control of crop insects and crop diseases, and the evaluation of systems for the feeding, pasturing and management of livestock. Also, much attention is given to soils and fertilizers, mechanical devices of importance on the farm, human nutrition, and various rural economic and social problems.

Priority is given to problems of special importance to the farmers of Tennessee. The results of investigations are carried to the people in the form of bulletins, circulars, and reports, through the Agricultural Extension Service, and to the state educational system through the Colleges of Agriculture and Education. Rural life has been greatly enriched by the results of these investigations, as have the curricula of the school system.

Headquarters and the Main Station of the Agricultural Experiment Station are located at Knoxville. In addition, the Experiment Station operates research facilities at other locations in the state as follows:

**UT-DOE COMPARATIVE ANIMAL RESEARCH LABORATORY**

This laboratory is located about 20 miles west of Knoxville near Oak Ridge. A program of radiobiological research in the field of agriculture is carried out by the Agricultural Experiment Station under contract with the Department of Energy. The program includes research with farm and laboratory animals, and in applied radioecology and plant breeding.

Facilities at the laboratory include approximately 2,000 acres of land for maintaining livestock and growing plants to be used in experimental work, a research laboratory especially suited to large animal work, and a unique gammaradiation field.

On January 1, 1965, the Agricultural Experiment Station was assigned responsibility for administration of the 600-acre farm adjacent to the Martin campus. The farm is used for both research and teaching. The research staff is jointly employed by the School of Agriculture at Martin. The staff works closely with the different departments in Knoxville in planning and executing the research program. Experiments are under way with field crops, dairy cattle, beef cattle, and swine. The primary concern is with problems of special importance to the northwestern part of the state.

**BRANCH STATIONS**

**Dairy Experiment Station** near Lewisburg contains 615 acres and is operated in cooperation with USDA-SEA/FR. Major emphases are breeding and nutrition of Jersey cattle.

**Highland Rim Experiment Station** near Springfield contains 586 acres. Major emphases are breeding and culture of darkfringed tobacco, soybeans, cotton, corn, tobacco, and livestock.

**Middle Tennessee Experiment Station** near Spring Hill contains 1,153 acres of representative high-phosphate Central Basin soils. Studies are under way with field crops, beef cattle, and dairy cattle of the Holstein breed.

**Plateau Experiment Station** near Crossville consists of three farms totaling 2,150 acres. Studies with beef cattle, field and horticultural crops provide information about results to be expected under the cooler, more humid climate and special soil conditions of the Cumberland Plateau.

**Tobacco Experiment Station** near Greeneville consists of 536 acres. Extensive research on burley tobacco is in cooperation with USDA-SEA/FR. In addition, beef cattle and field crops are studied.

**West Tennessee Experiment Station** near Jackson contains 660 acres. Major emphases are culture and breeding of cotton, other agronomic crops, horticultural crops, and breeding and feeding of dairy cattle.

**FIELD STATIONS**

**Ames Plantation** near Grand Junction includes 18,500 acres (about 10,000 acres in forest). The land is in trust by the Ames Foundation for use by the Institute of Agriculture. Large scale experiments involve forestry, farm management, crop production, and breeding and management of beef cattle and swine.

**Forestry Field Stations and Arboretum** at Oak Ridge, Tullahoma, and Wartburg. The 250-acre arboretum at Oak Ridge places emphasis on woody plants. Research in forestry studying genetics, species adaptation, fertilization, and other
management practices are under way on the adjoining 2,000 acres of land. The Cumnal forest estate consists of two tracts of land in Morgan and Scott counties with a total area of 8,678 acres. Research at this location deals with many of the forest problems of the Cumberland and including strip mine reclamation. The Highland Rim foree station located near Tullahoma consists of 860 acres. Research at this location deals primarily with the improvement through breeding and also management problems associated with the forest of the Highland Rim.

**Milan Field Station** in West Tennessee consists of 497 acres. Research emphases are on production problems and mechanization of cotton and soybeans.

**Agricultural Extension Service**

M.L. Downen, Dean
Troy W. Hinton, Associate Dean
Mildred F. Clarke, Assistant Dean
B.G. Hicks, Assistant to the Dean

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

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

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

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

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

**College of Agriculture**

O. Glen Hall, Dean

**Curricula in Agriculture**

Broad opportunities for young people to prepare for a future in agriculture, forestry, and wildlife and fisheries science are offered in the College of Agriculture.

The college provides curricula leading to the degrees of Bachelor of Science in Agriculture, Bachelor of Science in Agricultural Engineering, Bachelor of Science in Forestry, and Bachelor of Science in Wildlife and Fisheries Science.

The professional degree program in agricultural engineering receives strong support from the College of Engineering and is fully accredited by the Engineers' Council for Professional Development. The forestry curriculum is fully accredited by the Society of American Foresters.

A pre-professional curriculum in veterinary medicine is offered in the college. This program is designed to prepare students for admission to the College of Veterinary Medicine located on the Knoxville campus.

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

All academic and general requirements of the University as stated in the front section of this catalog must be met by agricultural students, and they must complete the requirements in one of the organized curricula. Students transferring into the College of Agriculture from other than the UTK campus must have a grade point average of 2.0. Each curriculum leading to the degree of Bachelor of Science in Agriculture includes the requirements of the basic curriculum for agriculture. For this degree, the minimum requirement is 186 quarter-hour credits. Students may include 6 hours of lower division military science and 9 hours of advanced military science credit in the 198 total. A minimum of 45 hours in agricultural courses is required. For the degrees of Bachelor of Science in Forestry and the Bachelor of Science in Wildlife and Fisheries Science, the minimum requirement is 188 quarter-hour credits. For the degree of Bachelor of Science in Agricultural Engineering, the minimum requirement is 199 quarter-hour credits.

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

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

**Satisfactory/No Credit Courses**

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

**Graduate Study in Agriculture**

**MASTER OF SCIENCE PROGRAMS**

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

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

**DOCTORAL PROGRAMS**

Graduate study programs lead to the Doctor of Philosophy degree in Animal Sciences, Agricultural Economics, Agricultural Engineering, 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 at other locations. 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; O.E. Brehm Animal Sciences Building, which includes a large pavilion; Ellington Hall 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 Science Farm (212 acres), and a livestock farm (510 acres) provide excellent field laboratory facilities for instructional programs offered in the College. Cherokee woodlot (120 acres), the Cherokee Forest (2,590 acres), and Ames Plantation (8,000 acres of forested land) provide excellent facilities for field work in forestry.

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

The facilities of the University on the main campus are available to agricultural students. Courses in the basic sciences, business, communications, engineering, etc., are open to agricultural students and are taught on the main University campus.

Selection of Curriculum

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

Students with special interest in science, business, or production technology should consult the adviser about selection of appropriate electives. A foundation for advanced study beyond the baccalaureate degree may be established in any curriculum if appropriate electives are included; also, courses may be elected in any of the curricula leading to the degree of Bachelor of Science in Agriculture, in preparation for employment with the Agricultural Extension Service. For this purpose, both the major-curriculum adviser and the agricultural-extension adviser should be consulted. A very careful choice of electives enables a student with an above-average academic record to complete a double major by satisfying all the requirements in each, or the adviser should consult the dean of the College of Agriculture should be informed, and each adviser should maintain a complete record of the student's progress.

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

BASIC CURRICULUM FOR AGRICULTURE

All students working for a degree of Bachelor of Science in Agriculture will include in their course of study the following required courses. The sequence and the selection of courses not specified will be guided by the adviser.

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture 1110, Introduction to Social Sciences for Agriculture</td>
<td>4</td>
</tr>
<tr>
<td>Agriculture 1120, Introduction to Agricultural Engineering</td>
<td>4</td>
</tr>
<tr>
<td>Agriculture 1139, Animal Science for Agriculture</td>
<td>4</td>
</tr>
<tr>
<td>Agriculture 1140, Plant Science for Agriculture</td>
<td>4</td>
</tr>
<tr>
<td>Agriculture 1150, Food Technology and Science for Agriculture</td>
<td>4</td>
</tr>
<tr>
<td>Agricultural Economics (department curricula)</td>
<td>26</td>
</tr>
<tr>
<td>English and Communications. (English 1010-20, 1031 or 1032 or 1033, Speech 2311, and elective 5 hours—literature or communications)</td>
<td>18</td>
</tr>
<tr>
<td>Mathematics 1140-50-60. (general mathematics)</td>
<td>12</td>
</tr>
<tr>
<td>Biological Science, (agricultural biology, biology, botany, microbe, or zoology)</td>
<td>12</td>
</tr>
<tr>
<td>Physical Science. (Chemistry 1110-20-30, 1120-20-30 and physics or geology)</td>
<td>16</td>
</tr>
<tr>
<td>Social Science and Humanities. (Economics 2110-20-30, sociology, 12 hours—not more than 3 areas)</td>
<td>18</td>
</tr>
<tr>
<td>Other Courses or Elective Hours Specified by Departments</td>
<td>76</td>
</tr>
<tr>
<td>TOTAL</td>
<td>198</td>
</tr>
</tbody>
</table>

Course Load

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

Agricultural Biology

Adviser: Professor Southards

No undergraduate curriculum exists in agricultural biology, but a program leading to the Master of Science degree with a major in agricultural biology is available (see Graduate Catalog). Courses in economic entomology, plant pathology, soil microbiology, and plant parasitic nematodes are available to agricultural students. The department is currently comprised of two major disciplines: economic entomology and plant pathology. The primary objective of offering a major at the graduate level is to provide training in these disciplines which deal with the natural hazards that are the major causes of losses in agricultural production. The training and graduate the foundation necessary for coping with the myriad insect and plant disease problems that constantly threaten Tennessee's dynamic agriculture.

Agricultural Economics and Rural Sociology

AGRICULTURAL BUSINESS CURRICULUM

Advisers: Professor Martin; Associate Professors Brooker, McLemore, Mundy, Snell, and Trevena

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

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

**Freshman**

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Agriculture 1110-20-30-40-50</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>English 1010-20; 1031 or 1032</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Mathematics 1540-50-60</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Biological science electives</td>
<td>8</td>
</tr>
</tbody>
</table>

**Sophomore**

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Chemistry 1110-20-30 or 1510-20-30 and 4 hours geology or physics</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(or Chemistry 1610-20 and 8 hours of geology and/or physics)</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>'Economics 2110-20-30</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Journalism 2110</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Nondepartmental social science and humanities electives</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Psychology elective</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Biological science elective</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td>6</td>
</tr>
</tbody>
</table>

**Junior**

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Agricultural economics electives</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural sociology elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Speech 2311</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Finance 3110</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Statistics 2110, 3210 and statistics elective</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Economics 3110-20</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Nondepartmental agricultural electives</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td>22</td>
</tr>
</tbody>
</table>

**Senior**

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Agricultural economics and rural sociology electives</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Economics elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Speech 3021 or communications elective</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Nondepartmental agricultural electives</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td>24</td>
</tr>
</tbody>
</table>

**TOTAL: 198 hours**

*1*One hour must be in PE.
*2*Requires admission to teacher education.

**Agricultural Engineering**

**AGRICULTURAL ENGINEERING CURRICULUM**

Advisors: Professors Wiegens; Associate Professors Craig and Todd

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

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

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

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

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

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

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**Sophomore**

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Agriculture 1110-20-30-40-50</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>'Economics 1010-20; 1031 or 1032</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Mathematics 1540-50-60</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Biological science electives</td>
<td>8</td>
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</tbody>
</table>

**Freshman**

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Agriculture 1110-20-30-40-50</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>English 1010-20; 1031 or 1032</td>
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</tr>
<tr>
<td></td>
<td>Mathematics 1540-50-60</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Biological science electives</td>
<td>8</td>
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</table>
## Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>Agricultural Engineering 1130.</td>
<td>3</td>
<td>4</td>
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<tr>
<td>Agriculture 1130-40</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Basic Engineering 1310-20-30</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Basic Writing 1410</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>English 1010-20-35</td>
<td>4</td>
<td>9</td>
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<tr>
<td>Graphics 1410-20</td>
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<tr>
<td>1Mathematics 1840-50-60</td>
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## Sophomore

<table>
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<tr>
<th>Course</th>
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<th>Credit</th>
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<tbody>
<tr>
<td>Biology 1210 or 1220 or 1230</td>
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<tr>
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<tr>
<td>Engineering Science and Mechanics 1311</td>
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<tr>
<td>Engineering Science and Mechanics 3700</td>
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<tr>
<td>English or communications elective</td>
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<tr>
<td>1Mathematics 2840-50-60</td>
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<tr>
<td>2Physics 2310-20-30</td>
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## Junior

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<tbody>
<tr>
<td>Agricultural Engineering 3100.</td>
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<td>1</td>
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<tr>
<td>Agricultural Engineering 3610-20-30</td>
<td>12</td>
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</tr>
<tr>
<td>Electrical Engineering 3120 or 3120.</td>
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</tr>
<tr>
<td>Engineering Science and Mechanics 3120 or 3320</td>
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<tr>
<td>Engineering Science and Mechanics 3510 or 3710</td>
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</tr>
<tr>
<td>Engineering Science and Mechanics 3131</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Mechanical Engineering 3530</td>
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<td>Mechanical Engineering 3540</td>
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<td>Speech 2311</td>
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<tr>
<td>Plant and Soil Science 2130</td>
<td>4</td>
<td>4</td>
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<tr>
<td>2Humanistic-social studies elective</td>
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## Senior

<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Economics 2110</td>
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<tr>
<td>Agricultural Engineering 3640.</td>
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<td>Agricultural Engineering 4130</td>
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<td>Technical elective</td>
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<tr>
<td>Electives</td>
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**TOTAL: 199 hours**

## Agricultural Mechanization Curriculm

Advisers: Professors Luttrell and Shelton

The agricultural mechanization curriculum is administered by the Department of Agricultural Engineering and leads to the degree of Bachelor of Science in Agriculture. The curriculum prepares students to apply principles, techniques and systems of engineering, agricultural science and business to the broad industry of agriculture. Agricultural mechanization courses encompass power and machinery, electrification and processing, structures and environment, and soil and water conservation. By selecting either the Production and Processing Option, or the Business and Industry Option, students, with assistance from their adviser, may structure their program to obtain either a broad or a highly specialized education. Graduates are employed by industry, government and educational institutions generally in the areas of management, promotion, sales and training related to agricultural products, materials and services.

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours</th>
<th>Credit</th>
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<tbody>
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<tr>
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<tr>
<td>2Mathematics 1540-50-60</td>
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## Sophomore

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<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
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<tr>
<td>Animal Science 2100</td>
<td>3</td>
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<tr>
<td>1Chemistry 1110-20-30 or 1510-20-30</td>
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<td>2Economics 2110-20</td>
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<td>Journalism 2110</td>
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<td>Physics 1210-20</td>
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<tr>
<td>Plant and Soil Science 2130</td>
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<tr>
<td>Special elective or humanities elective</td>
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## Junior

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Accounting 2110</td>
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<td>Agricultural Biology 3210</td>
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<tr>
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<tr>
<td>Graduation/Registration 2310-20</td>
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<tr>
<td>Computer Science 1410 or Office Administration 2750</td>
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<td>3</td>
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<tr>
<td>Microbiology 2910-11</td>
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<td>4</td>
</tr>
<tr>
<td>Plant and Soil Science</td>
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</tr>
<tr>
<td>Social science or humanities elective</td>
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</table>

**TOTAL: 198 hours**

## Agricultural Extention Education

Advisers: Professor Dotson; Associate Professor Carter

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

## Animal Science

Advisers: Professors Johnson, Biehn, Chamberlain, McLaren, Merriman, Montgomery, Murphree, Richardson, Shirley, Swanson; Associate Professors Barth, Holloway, Lidvall, Martin, Assistant Professors Corrick, Hitchcock, and Smalling

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

Students have the opportunity, through course selection, to procure the equivalent of double majors in animal science with vocational education, plant and soil science, agricultural economics, or other available departments.

| Forestry 1620                             | 3     | 3      |
| Forestry 3130                             | 3     | 3      |
| Plant and Soil Science 3110               | 3     | 3      |
| Plant and Soil Science 3150               | 3     | 3      |
| Plant and Soil Science 3520               | 3     | 3      |
| Ornamental Horticulture 3010              | 3     | 3      |
| Ornamental Horticulture 3020              | 3     | 3      |

## B. Business and Industry Option Electives

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credit</th>
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<tbody>
<tr>
<td>Accounting 2120</td>
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<td>3</td>
</tr>
<tr>
<td>Accounting 2133</td>
<td>3</td>
<td>3</td>
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<td>Agricultural Economics 3320</td>
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<td>Agricultural Economics 4320</td>
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<tr>
<td>Agricultural Mechanization 3580</td>
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<td>Agricultural Mechanization 4170</td>
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</tr>
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<td>Agricultural Mechanization 4180</td>
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<td>Animal Science 3310</td>
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<td>Animal Science 3380</td>
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<td>Food Technology and Science 3610</td>
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<td>Food Technology and Science 3840</td>
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<td>3</td>
</tr>
<tr>
<td>Food Technology and Science 4410</td>
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## B. Production and Processing Option Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>Agricultural Economics 4120</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Agricultural Mechanization 4170</td>
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<td>Agricultural Mechanization 4180</td>
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<tr>
<td>Animal Science 2630</td>
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<tr>
<td>Animal Science 3310</td>
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<td>3</td>
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<td>Animal Science 3510</td>
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</tr>
<tr>
<td>Food Technology and Science 4410</td>
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<td>3</td>
</tr>
</tbody>
</table>
Electives allow students to select an area for specialization. Those interested in production would select additional courses in agriculture; in business administration, economics, 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 adviser.

PREVETERINARY MEDICINE OPTION CURRICULUM
Advisers: Professors Merriman, Blotner, Chamberlain, McLaren, Montgomery, Murphee, Richardson, Shirley, Shrode; Associate Professors Barth, Holloway, Lidvall, Masincupp; Assistant Professors Corrick, Hitchcock, Smalling

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

A suggested schedule for the Preveterninary Medicine—Animal Science student is given below which will (1) allow for the completion of the above preveterninary requirements by the end of the third year and (2) allow the student to make normal progress toward completing the requirements for a degree in agriculture with a major in animal science. It is strongly recommended that the student carry a normal load of at least 16 to 18 hours per quarter.

**First year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>English 1010-20, 1031 or 1032 or 1033</td>
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<td>9</td>
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<tr>
<td>Mathematics 1540, 1560, 1580</td>
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<tr>
<td>Biology 1210-20-30</td>
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<tr>
<td>Chemistry 1110-20-30</td>
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<tr>
<td>Agriculture 1130</td>
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<td>Humanities electives</td>
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**Second year**

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Chemistry 3211-21-31</td>
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<tr>
<td>Chemistry 3219-28-39</td>
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<td>12</td>
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<tr>
<td>Physics 2210-20-30</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Agriculture 1110</td>
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<td>4</td>
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<td>Economics 2110</td>
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<td>4</td>
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<tr>
<td>Speech 2311</td>
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<td>4</td>
</tr>
<tr>
<td>Animal Science 3410, 2810*, 3320, and 3330</td>
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<td>13</td>
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<tr>
<td>Humanities electives</td>
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<td>4</td>
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</tbody>
</table>

**TOTAL: 155 hours**

*Students with a strong math background may omit Math 1540 and start with 1550 or elect to take the 1540-50-60 series.

**A recommended elective for students with limited or no practical animal experience and required for those attempting to obtain the B.S. in Agriculture with a major in animal science in the regular program; also for those accepted to UT College of Veterinary Medicine after 3 years and who wish to obtain the B.S. in Agriculture with a major in animal science after completion of the first year in the College of Veterinary Medicine (see below).

**It is recommended that the student include AS 3420, one 3000-level evaluation course, and one management course.

**For students accepted at the end of the third year of preveterninary medicine and desiring to receive a B.S. in Agriculture with a major in animal science upon successful completion of the first year in The University of Tennessee College of Veterinary Medicine, the following are required: Agriculture 1150 or equivalent food technology and science course, Plant and Soil Science 2130, other agriculture outside of animal science. It is recommended that Agricultural Mechanization 1160, Food Technology and Science 3640, Agricultural Biology 3210, Plant and Soil Science 3140.

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

ANIMAL SCIENCE CURRICULUM WITH A PREVETERINARY OPTION

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

The student will need to complete the requirements as established by the College of Veterinary Medicine. In addition, the student will need to complete the following courses in the College of Agriculture: AG 1110 or equivalent AG Econ. course; AG 1150 or equivalent FT & S course; AS 2810, 3420, one 3000 evaluation course, and one 4-hour management course; P & SS 2130; agriculture other than AS, 6 hours. In addition, the following general requirements must be met in order to meet certain rules of UTK and the College of Agriculture in granting degrees:

1. The last 45 hours of the three-year program must be taken at UTK.
2. At least 15 hours of upper-division technical agriculture must be taken at UTK.
3. The student must complete the first year in the UT College of Veterinary Medicine with the substitution of appropriate courses from the first year and the completion of a minimum of 198 hours will be granted a B.S. in Agriculture with a major in animal science. It is the student's responsibility to complete the above requirements and to initiate the request for the degree.
Food Technology and Science
Advisers: Professors Miles and Overcast; Associate Professors Collins, Jaynes and Melton

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

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

Freshman

<table>
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<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Agriculture 1110-30-40-50</td>
<td>16</td>
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<tr>
<td>English 1010-20; 1031 or 1032</td>
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<tr>
<td>Mathematics 1540-50-60</td>
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<td>Physics 1210-20-30</td>
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Sophomore

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<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Agriculture 1120</td>
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<tr>
<td>Chemistry 1110-20-30 or 1510-20-30</td>
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</tr>
<tr>
<td>Economics 2110-20-30</td>
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<tr>
<td>Food Technology and Science 2110-20</td>
<td>7</td>
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<tr>
<td>Microbiology 2910-19</td>
<td>5</td>
<td></td>
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<tr>
<td>Speech 2311</td>
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<tr>
<td>Communications or English elective</td>
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<tr>
<td>Social science elective</td>
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Junior

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<tbody>
<tr>
<td>Agricultural Mechanization 3510</td>
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<td>Chemistry 2230 or Nutrition 3310</td>
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<td>Nutrition 3220-30-39</td>
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<td>Food Technology and Science 3210-20</td>
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<td>Food Technology and Science 3210</td>
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<tr>
<td>Microbiology 3810</td>
<td>4</td>
<td></td>
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<tr>
<td>Plant and Soil Science 3610</td>
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<td></td>
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<tr>
<td>Communications or English elective</td>
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<td>Social science elective</td>
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Eletics: 12

Senior

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<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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<tr>
<td>Food Technology and Science 4010</td>
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<tr>
<td>Food Technology and Science 4110-20, 4310, 4910, 4920</td>
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<tr>
<td>Food Science 4010</td>
<td>3</td>
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<tr>
<td>Nutrition 3410</td>
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<td>Electives</td>
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</table>

TOTAL: 198 hours

Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Botany 1110-20 or Biology 1210-20</td>
<td>8</td>
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<tr>
<td>English 1010-20; 1031 or 1032</td>
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<tr>
<td>Forestry 1620</td>
<td>3</td>
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<tr>
<td>Mathematics 1540-50-60</td>
<td>12</td>
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<tr>
<td>Physics 1210-20</td>
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<tr>
<td>Speech 2311</td>
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Sophomore

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<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Chemistry 1510-20-30</td>
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<tr>
<td>Computer Science 1410</td>
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<tr>
<td>Economics 2110-20-30</td>
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<tr>
<td>Forestry 320-40-50</td>
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<tr>
<td>Plant and Soil Science 2130, 3610</td>
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<tr>
<td>Electives</td>
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Students entering the junior year should check with advisor to assure completion of courses prior to spring quarter.

Junior

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<thead>
<tr>
<th>Course</th>
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<tr>
<td>Accounting 2110</td>
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<tr>
<td>Agricultural Biology 3130</td>
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<td>Agricultural Mechanization 2140, 3140</td>
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<td>Forestry 3110-20, 3230, 3250</td>
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<td>Electives</td>
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Senior

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Agricultural Biology 3210</td>
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<tr>
<td>Forestry 310-20</td>
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<tr>
<td>Forestry 4210-20-30, 4330, 3240</td>
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<tr>
<td>Electives</td>
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TOTAL: 198 hours

FOREST RECREATION OPTION

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

Freshman

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<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Botany 1110-20 or Biology 1210-20</td>
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<tr>
<td>English 1010-20; 1031 or 1032</td>
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<tr>
<td>Forestry 1620</td>
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<tr>
<td>Mathematics 1540-50-60</td>
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<tr>
<td>Physics 1210-20</td>
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<tr>
<td>Speech 2311</td>
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Sophomore

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<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Chemistry 1510-20-30</td>
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<tr>
<td>Computer Science 1410</td>
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<td>Economics 2110-20-30</td>
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<td>Forestry 320-40-50</td>
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<tr>
<td>Psychology 2590</td>
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<tr>
<td>Plant and Soil Science 2130</td>
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<td>Journalism 2210</td>
<td>3</td>
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<tr>
<td>Political Science 2020</td>
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<td>Electives</td>
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</table>
Senior Forestry 3210, 4210, 4230, 4240, 4330, 4440... 21
Planning 4100... 3
Ornamental Horticulture and Landscape Design 4120, 4190... 8
Electives... 17
TOTAL: 198 hours

Ornamental Horticulture and Landscape Design

Adviser: Professor Williams

Human needs go beyond food, clothing, and shelter. We require a degree of control over our environment, especially immediate surroundings. Ornamental plants and their use are recognized as part of the environment, hence a curriculum in ornamental horticulture and landscape design. The four areas of study within this curriculum are floriculture, nursery management, turfgrass management, and landscape design. These areas of study include the science of producing flowering plants in field and greenhouse and the art and science of using these plants for the benefit of humans. Opportunities are available for greenhouse managers, floral designers, retail salesmen, garden writers, research workers, and teachers.

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

Turfgrass management includes all aspects of growing and caring for turfgrass, whether it be golf greens or home lawns. The increasing number of golf courses and home lawns have the emphasis on better quality make new opportunities for turfgrass managers. Such opportunities include golf course superintendents, park and recreational turf managers, operations of a lawn maintenance business, producer and seller of sod, research, teaching, and sales. Landscaping means controlling the outdoor environment to the greatest use, comfort, and enjoyment. It not only means the use of trees, shrubs, and other plant material to accomplish this goal, but it also means having an understanding of the requirements for working, recreation, and housing. Emphasis in the area of landscape design is on plant material and design courses. Opportunities in this area include landscape architect, landscape nurseryman, landscape maintenance, garden center operation, allied sales, highway landscaping, park development, research, teaching, and writing.

Freshman Hours Credit

Agriculture 1110-20-30-40-50... 20
1Introduction to biological sciences... 12
1English 1010-20; 1031 or 1032... 9
1Mathematics 1540-50-60... 12

Sophomore

1Chemistry 1110-20-30 or 1510-20-30... 12
1Economics 2110-20... 6
Speech 2311... 4
Physics 1220, 1410 or 1420... 5
English or communications electives... 5
Social science or humanities electives... 6
Plant and Soil Science 2130... 4
Orn. Hort. and Landscape Design 3100... 3
Orn. Hort. and Landscape Design 3020... 3

Junior

Social science or humanities electives... 6
Chemistry 2320 or 3211-19... 4
Agricultural Biology 3120, 3310... 3
Plant and Soil Science 3110... 4
Plant and Soil Science 3020... 3
Orn. Hort. and Landscape Design 3030... 3
Orn. Hort. and Landscape Design 3110... 3
Orn. Hort. and Landscape Design 3210... 4
Electives... 7

Senior

Plant and Soil Science 3040... 3
Orn. Hort. and Landscape Design 4150 or 4160... 3
Orn. Hort. and Landscape Design 4120... 4
Orn. Hort. and Landscape Design 4610... 1
Agricultural electives... 9
Orn. hort. and landscape design electives... 5
Electives... 23

TOTAL: 198 hours

Or equivalent hours courses.
With program advisor, to include: 8 hours of communications electives, with Journalism 2110, 3110 highly recommended. 12 hours of social science or humanities and 20 hours of electives taken from the following: Ag Biology 3120; Animal Science 3220, 3320, 3510, 3520; Biology 3110, 3120; Botany 4310; Forestry 4340, 4440; Physics 1220; Zoology 3040, 3050, 3150, 4290, 4300, 4670, 4700-20. Computer Science 1510 is accepted in lieu of 1410 for those wishing to elect additional courses in this area.

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 themselves and of the American public. Management may be aesthetic, economic, or ecological. Success depends upon wildlife and fisheries biologists giving assistance to attaining the goals for which they strive; scholarly application of scientific information and methods to these goals; ecological perspective; and execution of programs to maintain past successes, to prevent past failures, and to prepare for future needs.

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

Freshman Hours Credit

Agricultural Biology 1210-20-30... 12
Mathematics 1540-50-60... 12
English 1010-20; 1031 or 1032 or 1033... 9
Speech 2311... 4
Electives... 6

Sophomore

Agricultural Biology 3120, 3190... 4
Electives... 4

Junior

Zoology 3060, 4230... 8
Wildlife and Fisheries Science 3230, 3290... 8
Orn. Hort. and Landscape Design 3010... 3
Orn. Hort. and Landscape Design 3120... 3
Electives... 21
Employment opportunities differ depending upon the individual’s type of training and interest. For the person who is scientifically inclined, positions are available in both public and private agencies. For those who wish to apply their knowledge to the solution of practical problems, positions are available with the Agricultural Extension Service as extension agents or as specialists, with the Soil Conservation Service, Forest Service, Farmers Home Administration, Production Credit Association, and other public agencies. Many plant and soil scientists are employed in private industry as technical specialists, supervisors and salesmen. Banks and other financial institutions employ plant and soil scientists as appraisers and farm managers. Others may farm on their own, manage farms for others, or work in foreign agricultural programs. Certainly, plant and soil science is basic to all agriculture, and people trained in this important field will find many opportunities to serve in modern agriculture.

Each student selecting this major must complete the basic curriculum for agriculture and fulfill the major group requirements. The curriculum in plant and soil science showing the manner in which the required courses may be taken by years is as follows:

**Freshman**
- Hours Credit
  - Agriculture 1110-30-40-50: 16
  - Lower-division biological sciences: 12
  - English 1010-20: 10
  - Mathematics 1540-50-60: 12

**Sophomore**
- Chemistry 1110-20: 12
- Economics 2110: 4
- Plant and Soil Science 2130: 4
- Speech 2311: 4
- Physics 1210 or 2210: 4
- English and communications electives: 5
- Social science or humanities electives: 9

**Junior**
- Social science or humanities electives: 3
- Biological or physical science electives: 12
- Agricultural Biology 3130 or 3210: 4
- or 4010: 4
- Chemistry 2210 or 2311-19: 4
- Nutrition 3310: 4
- Animal Science 3310 or 3320: 3
- Plant and Soil Science 3020 or 3040: 4
- Plant and soil science electives: 12
- Nondepartmental agricultural electives: 6
- Electives: 6

**Senior**
- Botany 3210: 4
- Plant and Soil Science 4910: 1
- Plant and soil science electives: 10
- Electives: 35

**TOTAL: 198 hours**

Or equivalent honors courses.

Mathematics 1040-50-60 are suggested for students with high mathematics scores.

Student should consult with departmental adviser for suggested courses.

Only courses taught outside the College of Agriculture will fulfill this requirement.

Plant and soil science electives must include at least three courses from Group A and three from Group B listed below. Plant and Soil Science 3610 can be counted in only one of the groups.

**GROUP B**
- Plant and Soil Science 3120, 3140, 3160, 3180, 3510, 3520, 3610, 3710, 4120

In addition to the specific courses, students can specialize in areas of their interest by selecting courses from the following groups. These lists are suggestive only. The departmental adviser will guide the student according to the student's individual objective.

**Agriculture**
- Agricultural Economics 4120, 4140, 4330:
- Agricultural Marketing 3210, 4210:
- Animal Science 2810, 3410, 3510:
- Food Technology and Science 3840:
- Rural Sociology 3420:

**Business**
- Accounting 2110-20; Business Law 4110-20-30:
- Economics 2130; Finance 3110; Management 3010;
- Marketing 3110-20; Office Administration 4310-20:

**Science**
- Biology 3110-20-30; Botany 3030, 4310:
- Chemistry 2140-49, 3211-21-31, 3219-29-39:
- Geology 4140-20-30; Physics 1220-30:

**Credit for Cooperative Work**
A maximum of nine quarter hours credit may be earned by supervised employment on approved jobs. To receive credit, the student must receive the recommendation of the employer, must present a satisfactory written report, and must receive a passing grade from the University professor in charge. Employment periods shall be not less than 12 weeks. At least one quarter must be spent in study on the campus between periods of employment. Prerequisites: Junior classification, with grade point average of 2.2 or above, and permission of the department head and the dean of the College of Agriculture to register. Three hours credit each quarter.

**Short Courses and Special Events**
Practical short courses in agriculture are offered for those who desire special training in certain fields. Some of these short courses are held on the Knoxville campus, others at the Buford Ellington 4-H Club Training Center, Milan, Tennessee, or appropriate research stations. The Resident Instructor, Research, and Extension staffs join in teaching these special courses annually and others are offered to meet immediate needs for special instruction. They are service courses and do not carry college credit.

In-service training is provided special groups, such as the teachers of vocational agriculture, through short-term courses which are offered at convenient locations in the state.

A special occasion known as Varsity Visit is held during the year. Delegates from all Future Farmers of America chapters are invited to spend a day on the agricultural campus with their advisers. Approximately 500 attend and inspect each department of the College.

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**Departments of Instruction**

**Interdepartmental offerings**

**Agriculture (088)**
1110 Introduction to Social Sciences for Agriculture (4) Social sciences as they relate to agriculture—agriculture in the economy; tools of social science analysis applied to agricultural problems; agriculture, its development, relation to man, industry and government. 4 hrs and 1 lab.

1120 Introduction to Agricultural Engineering (4) Agricultural power and machinery fundamentals, agricultural structures, soil and water conservation controls, and agricultural uses of electricity. 3 hrs and 1 lab.

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

1140 Plant Science for Agriculture (4) Plant structure, physiology, heredity, and environment in relation to growth, adaptation, and management of crops. 3 hrs and 2 labs.

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

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

4110 Agricultural Industry Field Seminar (3) A travel study of the agricultural industry involving agricultural production, processing, marketing and services, and their interaction relationships. Written report required. Prereq: Junior standing and permission of instructor.

**Departmental Programs**

**Agricultural Biology (037)**
Professors:
- C.J. Southard (Head), Ph.D. North Carolina State; J.W. Hilty, Ph.D. Ohio State; L.F. Johnson, Ph.D. Louisiana State.

Associate Professors:
- R.R. Gerhard, Ph.D. North Carolina State;
- P.L. Lambdin, Ph.D. Virginia Tech;
- C.D. Piess, Ph.D. Clemson;
- H.E. Reed, Ph.D. Ohio State.

Assistant Professor:
- E.C. Bernard, Ph.D. Georgia.

3130 Introductory Plant Pathology (4) Principles of plant pathology illustrated by diseases of common agricultural crop plants. Prereq: Botany 1120 or Biology 1220. 3 hrs and 1 lab. (Same as Botany 3130).

3140 Forest Pathology (4) Etiology, recognition, economic impact, and control of forest tree diseases, including wood decay and other diseases important to urban forestry and forest nurseries. Prereq: Botany 1120 or Biology 1220 or equivalent. 3 hrs and 1 lab. No credit if 3130 previously taken.

3210 Economic Entomology (4) Structure, life history, habits, and principles of control of important insect pests of farm, garden, orchard, and household. 3 hrs and 1 lab.

3220 Apiculture (3) Biology of the honey bee, with emphasis on beekeeping equipment and apiary management practices relative to pollination of crops and production of honey and beeswax. 2 hrs and 1 lab.
410 Biology of Soil Microorganisms (4) Morphology and physiology of soil organisms, decomposition of organic matter, chemical transformations, and interactions between soil organisms and higher plants. Prereq: 3130 or introductory microbiology. 3 hrs and 1 lab. (Same as Microbiology 4010.)

3020 Forest and Shade Tree Entomology (3) Identification, biology, ecology, and control of forest and shade pests. Prereq: 3210 or equivalent. 2 hrs and 1 lab.

GRADUATE

5000 Thesis

5010 Research Methods and Instrumentation in Plant Pathology and Entomology (3)

5210 Plant Parasitic Nematodes (4)

5220 Plant Disease Control (3)

5230 Field Crop and Vegetable Insects (3)

5250 Medical and Veterinary Entomology (4)

5260 Insect Pest Management (4)

5310 Special Problems in Plant Pathology or Economic Entomology (1-6)

5410 Seminar (1)

Agricultural Economics and Rural Sociology

Professors: J.A. Martin (Head), Ph.D. Minnesota; M.B. Badenhop, Ph.D. Purdue; D.W. Brown, Ph.D. Iowa State; C.L. Cleland, Ph.D. Wisconsin; Irving Dubov, Ph.D. California (Berkeley); L.H. Keller, Ph.D. Kentucky; F.O. Leuthold, Ph.D. Wisconsin; B.R. McManus, Ph.D. Purdue; B.H. Pentecost, J.D. Tennessee; W.P. Ranney (Emeritus), Ph.D. Minnesota; C.B. Sappington, Ph.D. Illinois; T.J. Whately, Ph.D. Purdue.

Associate Professors: J.R. Broker, Ph.D. Florida; C.M. Cuskaden, Ph.D. Michigan State; T.H. Klinet, Ph.D. Kentucky; D.L. McLemore, Ph.D. Clemson; S.D. Mundy, Ph.D. Tennessee; J.G. Snell, Ph.D. Michigan State; R.W. Todd, J.D. Tennessee; B.J. Trevenal, Ph.D. Tennessee.

Assistant Professor: R.H. Orr, Ph.D. Illinois.

Agricultural Economics (047)

2410 Economics of Food and Rural Resources (3) Analysis of contemporary problems and issues of public concern relating to food, agriculture, and rural areas using fundamental economic concepts. Farm income, food prices, world food problems, natural resources, environment, rural development.

3120 Agricultural Prices (3) Factors determining prices of farm products. Effects on price of varying degrees of competition and monopoly, specification and presentation on prices and related market data. Uses of price information and techniques of analysis in determining outlook for farm prices. Prereq: Agriculture 1110 and Economics 2120.

3220 Marketing Farm Products (3) American marketing system; alternative market structures, functions of each system; commodity marketing problems, current marketing problems and possibilities for improvement. Prereq: Agriculture 1110 and Economics 2120.

4100 Farm Business Analysis (3) Techniques of analyzing a farm business. Factors affecting farm income and efficiency. Resource acquisition, cash flow, risk, tax, and tenure considerations. Practice in decision making on small farm. Prereq: Agriculture 1110 and Economics 2120. 2 hrs and 1 lab.

4110 Commodity Futures Markets (3) Futures market as an instrument in marketing of primary industry products; process of passing to others the risk of adverse price change; price analysis from two viewpoints: supply-demand and history (fundamentalist and chartist). Prereq: Junior standing. 3 hrs.

3710 Consumer Demand for Agricultural Products (3) Economic principles, practices and budgeting techniques to use in purchasing of goods and services. Evaluation of advertising and other related information. Prereq: Agriculture 1110 and Economics 2120.

4120 Farm Management (3) Principles of farm organization and operation; allocating land, labor, and capital to crops and livestock; economic arrangements and use of credit; risks; measures of success. Use and analysis of records; exercises in planning for farms. Field trips arranged. Prereq: Agriculture 1110 and Economics 2120. 2 hrs and 1 lab.

4140 Introduction to Agricultural Production Economics (3) Resource allocation, product selection, scale of operations of agricultural firms; aggregate effects of decisions made by individual agricultural firms. Prereq: Agriculture 1110 and Economics 2120, and senior standing.

4210 Problems in Agricultural Economics (3) Supervised laboratory work in matters of collecting and analyzing information and in writing a report. Prereq: Agriculture 1110 and Economics 2120. May be repeated to a maximum of 9 hrs credit.

4420 World Agriculture and Trade (3) Economic bases of world agricultural production and trade, resource location, land tenure systems, international trade and commercial policy. Prereq: Agriculture 1110 and Economics 2120, or consent of instructor.

4425 Agricultural and Rural Planning (3) Decision-making approaches; land use, housing, utility, implementation of local action programs. Case examples from the U.S. and other countries. Prereq: Agriculture 1110 and Economics 2120, or consent of instructor.

4310 Agricultural Finance (3) Nature and source of capital; credit problems of farmers; kinds and sources of farm credit. Agricultural insurance and finance. Prereq: Agriculture 1110 and Economics 2120.

4320 Agricultural Policies (3) Meaning of agricultural policy in democratic society; relationship of farm groups to public policy; problems giving rise to policy; types of agricultural policy and appraisal of results; current policy problems. Prereq: Agriculture 1110 and Economics 2120.

4330 Land Economics (3) Problems and policies of land use, conservation, development, taxation, and tenure; population growth and demand for land; principles and theories of rent, property value, and income. Prereq: Agriculture 1110 and Economics 2120.

4610 Management of Farm Supply and Marketing Firms (3) Operations of firms selling farm supplies and merchandising agricultural products. Emphasis on accounting data and the economic theories for decision making. Prereq: Agriculture 1110 and Economics 2120.

4630 Advanced Agricultural Marketing (3) Theory of production organization and cost; application of cost theory to the production organization of the marketing firm and problems of efficiency of plant operation. Market organization, structures, and price policies. Prereq: 3230.

4710 Agricultural Law (4) Survey of law and application to the farmer, his family, and agricultural industry. Property, contracts, torts, drainage and water law, landlord-tenant relationships, taxation and insurance, forms of business organization, estate planning, regulatory laws, and other selected topics.

4840 Economics of Agricultural Development (3)

5610 Quantitative Methods in Agricultural Economics (3)

5710 Quantitative Methods in Agricultural Economics (3)

6000 Doctoral Research and Dissertation

6120 Seminar in Agricultural Economics (3,3)

6210 Agricultural and Rural Transformation Problems (3)

6410 Agricultural Supply Analysis (3)

6420 Marketing and Resource Use (3)

Rural Sociology (880)

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

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

GRADUATE

5340 Special Problems (3)

5430 Rural Sociology Seminar (3)

5450 Advanced Rural Sociology (3)

5470 Research Problems in Rural Communities (3)

5490 Rural Population Analysis (3)

Agricultural Engineering

Professors: H. Luttrell (Head), Ph.D. Iowa State; B.L. Biedsche, Ph.D. Oklahoma State; J.J. McCow (Dean of Admissions and Records), Ph.D. Michigan State, P.E.; J.J. Sewell (Assistant Dean, Ag Experiment Station), Ph.D. North Carolina State, P.E.; H.O. Vaigneur, Ph.D. Iowa State.


Assistant Professors: D.O. Baxter, M.S. Missouri; L.M. Saify Jr., Ph.D. Cornell; F.D. Tompkins, Ph.D. Tennessee.
Agricultural Engineering (066)

1130 Introductory Agricultural Engineering (3)
Basic engineering principles, field of agricultural engineering. 2 hrs and 1 lab. Prereq: Open only to freshman and sophomore students in agricultural engineering.

5100 Seminar (1) Presentations, discussions, reports on research techniques. Prereq: Consent of department head.

3610 Soil and Water Conservation Engineering (4) Integration of hydrologic, agronomic and engineering principles in solving agricultural water management problems involving flood and erosion control, drainage, irrigation, and water quality. Prereq: Plant and Soil Science 2110; Engr. Sci. and Mech. 3110, 3 hrs and 1 lab. Graduate credit for non-majors only.

3620 Structures for Production, Environmental Control and Waste Management (4) Analysis of loads and stresses; design of wood, steel and concrete members; structural and environmental requirements of facilities for livestock and crop production and storage; physiological requirements; heat loads; insulation; moisture relationships; ventilation and waste management. 3 hrs and 1 lab. Graduate credit for non-majors only.

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

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

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

4220 Special Problems in Agricultural Engineering (3) Selection, analysis, solution, and report of research problems. May be repeated for maximum of nine hrs credit when engaged in Cooperative Engineering or other approved industry work. Prereq: 3100 and consent of department head.

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

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

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

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

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

Animal Science (113)

Professors: R.D. Johnson (Head), Ph.D. Ohio State; M.C. Bell, Ph.D. Oklahoma State; J.K. Betner (Emeritus), Ph.D. Ohio State; C.C. Chamberlin, Ph.D. Pennsylvania; H. Hansard, Ph.D. Florida; H.M. Jamison, Ph.D. Tennessee; J.B. McLaren, Ph.D. Auburn; M.J. Montgomery, Ph.D. Wisconsin; J.A. Pearson, Ph.D. M.V. Michigan State; R.L. Murphee, Ph.D. Wisconsin; D.O. Richardson, Ph.D. Ohio State; H.V. Shirley, Ph.D. Illinois; R.H. Shryock, Ph.D. Iowa State; E.W. Swanson, Ph.D. Missouri; R.L. Tugwell, Ph.D. Kansas State; C.E. Wylie (Emeritus), A.M. Missouri.


Assistant Professors: R.E. Cartee, D.V.M. Kansas State; J.A. Corrick, Ph.D. Tennessee; D.G. Doyle, Ph.D. Cornell; J.P. or relation, Ph.D. of variables, Assessment of improvement. 2 hrs and 1 lab.

Instructors: N.G. Kincaid, M.S. Purdue; G.C. McGhee, B.S. Tennessee.

In addition, additional expertise of staff members at CARL and Oak Ridge is used on appropriate occasion.

2610 Fundamentals of Meat Animal Evaluation (3) Criteria for live animal and carcass evaluation; market classes and grades of beef, pork and lamb; subjective and objective techniques for determining muscle and fat relationships in cattle, hogs and sheep. 1 hr and 2 labs.


2810 Farm Animal Management Practices (3) Inclusion of management practices and skills into cattle, horse, sheep, poultry and swine enterprises. Practices and skills include dehorning, castrating, docking, foot care, shearing, age determination, identification, preparing for show and sale, immunizing and controlling parasitism. Facilities needed in livestock management including buildings, fences, corrals, equipment, space requirements and restraints. 2.5-3 hrs labs.

2820 Introduction to Light Horses (3) Scope and role of light horse industry; breeds—development, function and use; unsoundness; tack—introduction to management problems. May not be used by animal science majors to meet graduation requirements. 2 hrs and 1 lab.

3210 Anatomy and Physiology of Farm Animals (4) Structure, function and physiology of organ systems of horses, cattle, sheep, swine and poultry. 3 hrs and 1 lab.

3220 Physiology of Reproduction (3) Comparative anatomy, physiology of reproductive systems of higher vertebrates; endocrinology; fertilization, implantation, prenatal growth, parturition, lactation, secretions; role of hormones in regulation of reproductive phenomena. Prereq: 3210 or consent of instructor. 2 hrs and 1 lab. (Same as Zoology 3220.)

3310 Introduction to Animal Nutrition and Feeding (3) Nutrient utilization, function and requirements of farm animals; animal feeds, nutrient content; evaluation of feeding value; balancing rations for beef and dairy cattle, swine and poultry. Not available to students with credit in 3320. Prereq: Agronomy 2110 or 1530. 2 hrs and 1 lab.

3320 Animal Nutrition (3) Properties, functions, utilization and deficiency symptoms of essential nutrients; nutritional value determinations and their use. Prereq: Agronomy 2110 and one quarter of organic chemistry.

3330 Feeds and Ration Formulation (4) Feedstuffs, additives, feeding standards, nutrient requirements and ration formulation for beef and dairy cattle, sheep, horses, swine, poultry and laboratory animals. Prereq: Agronomy 2110 and 2 hrs and 2 labs.

3410 Heredity in Animals (3) Basic chromosomal mechanisms of heredity with emphasis on Mendel's principles and exceptions such as linkage and cytoplasmic inheritance. Introductions to biochemical basis of heredity and to quantitative inheritance. Illustrations of principles related to species familiar to agriculture students. Prereq: Agriculture 2110. 2 hrs and 1 lab.

3420 Principles of Animal Breeding (3) Genetic principles involved in breeding of economic species. Selection; Breeding for various species according to various kinds of economic selection criteria. Differences such as differences in genetic makeup and environment. Selection and consequences. Mating systems and effects on populations. Planning breeding programs. Prereq: Agronomy 2110 or equivalent. 2 hrs and 1 lab.

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

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

3520 Avian Diseases (3) Major diseases; characteristics, prevention and treatment, management practices, and systems for domestic birds, upland game birds and water fowl. 2 hrs and 1 lab.

3610 Meat Animal Selection (3) Evaluation, judging, classification of various classes of beef, cattle, swine, and sheep for functional efficiency. Prereq: Agronomy 2110-11 or 2110-19 or consent of instructor. 3 hrs and 1 lab.

3620 Dairy Cattle Judging and Classification (3) Comparative judging, oral reasons; type classification programs. Economic value of classification ratings. 3 labs.

3830 Judging Poultry and Poultry Products (3) Grading of poultry and poultry products according to USDA standards; factors influencing quality. 1 hr and 2 labs.

3640 Horse Selection and Judging (3) Selection, judging, evaluation of soundness and scoring of working and pleasure horses for functional efficiency. Prereq: Consent of instructor. 1 hr and 2 labs.

3650 Nutrition and Management of Laboratory Animals (3) Principles in feeding, breeding and handling of animals in scientific investigations; specific species' requirements, peculiarities and research techniques; care and overrearing use and handling of laboratory animals. Prereq: Agronomy 2110 and consent of instructor. 2 hrs and 1 lab.

4110 Special Problems in Animal Science (1-4) Special research problems based on supervised independent study or review of literature dealing with subjects applicable to field of animal science. Work experience in state-federal laboratories or in private industry. May be repeated for a maximum of 9 hours credit. Prereq: Senior standing and consent of instructor and department head.

4210 Physiology of Lactation (3) Development, anatomy and function of mammary glands; endocrine interactions for mammary development and milk secretion; factors affecting yield and composition of milk. Prereq: Agronomy 3210.

4220 Avian Physiology (3) Anatomy and physiology of avian species with emphasis on poultry. Prereq: Agronomy 3210. 2 hrs and 1 lab.

4300 Applied Reproduction in Farm Animals (3) Application of methods and techniques in collecting, evaluating, processing and preserving semen; insemination of females; pregnancy determination; gestation and parturition. Male and female infertility. Prereq: Agronomy 3210. 2 hrs and 1 lab.

4330 Feeding Applications for Farm Animals (3) Detailed application of feeding principles designed to allow students to discover and explore feeding options through hands-on problem solving. Prereq: Agronomy 3210. 2 hrs and 1 lab.

4340 Experimental Animal Nutrition Laboratory (2) Laboratory feeding trials to demonstrate basic animal nutrition concepts including the preparation and feeding of experimental diets. Prereq: Agronomy 3210. 2 labs.

4410 Applied Animal Breeding (3) Applications of principles studied in 3410. Team taught by specialists in breeding of beef, dairy cattle, meat animals and poultry. Prereq: Agronomy 2110 and 1 lab.

4610 Advanced Beef Cattle, Dairy Cattle, Horse, Poultry, Sheep and Swine Judging (2) Specialization in judging, evaluation, selection, and presentation of oral reasons on classes of beef cattle, dairy cattle, horses, poultry, sheep and swine. May not be repeated for credit. Prereq: Consent of instructor. 2 lab.

4810 Beef Cattle Production and Management (4) Integration of principles of nutrition, physiology and breeding into complete beef cattle management program. Topics will include structure of industry, enterprise establishment, systems of production, production practices and herd improvement programs. Alternatives evaluated on terms of production response and economic returns. Prereq: Completion of animal science sophomore and junior core courses or consent of instructor. 3 hrs and 1 lab.

4820 Dairy Cattle Production and Management (4) Integration of principles of nutrition, physiology and breeding into complete dairy cattle management program. Topics will include structure of industry, enterprise establishment, systems of production, production practices and herd improvement programs. Alternatives evaluated on terms of production response and economic returns. Prereq: Completion of animal science sophomore and junior core courses or consent of instructor. 3 hrs and 1 lab.

4830 Pork Production and Management (4) Integration of principles of nutrition, nutrition, breeding, physiology and marketing into complete pork production and management program. Topics will include structure of industry, enterprise establishment, systems of production, production practices and herd improvement program. Alternatives evaluated in terms of production response and economic returns. Prereq: Completion of animal science sophomore and junior core courses or consent of instructor. 3 hrs and 1 lab.

4840 Poultry Production and Management (4) Structure of poultry industry, enterprise establishment, management of poultry enterprises including rearing, housing, processing and marketing. Prereq: Completion of animal science sophomore and junior core courses or consent of instructor. 3 hrs and 1 lab.
Food Technology and Science (390)

Professors:
J.T. Miles (Head), Ph.D. Wisconsin; J.L. Collins, Ph.D. Maryland; Y.B. Harrison (Emeritus), M.S., A. Tennessee; W.W. Overcast, Ph.D. Iowa State.

Associate Professors:
B.J. Demott, Ph.D. Michigan State;
H.O. Jaynes, Ph.D. Illinois; C.C. Melton, Ph.D. Kansas State; S.L. Melton, Ph.D. Tennessee.

Assistant Professor:
G.W. Davis, Ph.D. Texas A & M.

2110 Food Regulations and Standards (3) Federal and state laws regulating food industry. Quality grades and standards and methods of evaluating processed foods. 2 hrs and 1 lab.

2120 Food Manufacturing (4) Preparation of raw material, cleaning, grading, slicing, crushing, extracting, filtering, pumping, mixing and heat processing. Prereq: Math 1500. 3 hrs and 1 lab.

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

3210 Food Composition (3) Determination and study of major constituents of fresh and processed foods with attention to changes and interactions occurring during processing and storage. Prereq: Chemistry 1120 or 1520 or 1620. 2 hrs and 1 lab.

3220 Food Preservation (4) Survey of food industry and preservation methods for prevention of deterioration of food. Prereq: Microbiology 2910-19. 3 hrs and 1 lab.

3570 Evaluating and Grading Dairy Products (3) Market standards and grades of dairy products with practice in grading milk, ice cream, butter, cheese and other specialized dairy products. 1 hr and 2 labs.

3610 Meat Evaluation and Grading (3) Grading standards for quality and quantity and principles of evaluation of lamb. Practice in grading and judging carcasses and cuts. 1 hr and 2 labs.

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

4000 Problems in Food Technology (1-4) Research problems in student’s area of interest. Required written report. Supervised experience in state or federal laboratories or approved industries encouraged. May be repeated. Maximum 9 hrs credit. Prereq: Consent of department head.

4010 Food Technology and Science Seminar (1-3) Review of literature; oral and written reports. May be repeated for a maximum of 3 hrs credit. Prereq: Junior standing and consent of Instructor.

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

4050 Advanced Food Composition (3) Intensive study of food constituents and changes affected by processing and storage. Prereq: 3210 and Nutrition 3320 or equivalent. 2 hrs and 1 lab.

4110 Food Plant Sanitation (3) Environment for manufacturing and preserving foods. Prereq: Junior standing. 2 hrs and 1 lab.

4120 Food Quality Assurance (3) Systems for quality assurance in food industries. Various methods including statistics used by food industries to assure desired quality of food products. Prereq: Junior standing and 3 hrs statistics. 2 hrs and 1 lab.

4210 Food Additives (3) Substances used in food manufacturing with emphasis on properties and functions. Prereq: Nutrition 3320 or equivalent.

4310 Food Packaging (3) Characteristics and application of materials and containers to packaging requirements of food. Prereq: 3220. 2 hrs and 1 lab.

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

4810 Microbiology in Food Manufacturing (3) Relationship of growth of common food microorganisms in fermentative and enzymatic changes occurring during processing and manufacturing of foods. Prereq: Microbiology 2910-19 or equivalent. 1 hr and 2 labs.

4820 Fermented Foods (3) Role of microorganisms in preparing foods with emphasis on development of certain desirable characteristics, flavor, aroma, texture, and keeping quality. Prereq: Microbiology 3810. 2 hrs and 1 lab.

4840 Meat Products Manufacturing (3) Prepared meat products with emphasis on sausage making and information relating to cost controls, inspection and meat science. Prereq: 3840 or consent of instructor. 1 hr and 2 labs.

4820 Physical Phenomena of Foods (4) Physical states of foods, foams, emulsions, colloidal soils, hydrates, crystals, gels. Effects of manufacturing practices on these properties. Prereq: Consent of instructor. 3 hrs and 1 lab.

Graduate:

5000 Thesis

5100 Seminar (1)

5120 Food Color (3)

5130 Food Enzymology (3)

5140 Food Flavors (3)

5150 Fats and Oils (3)

5200 Research (1-5)

5310 Food Products Development (3)

5320 Food Thermobiology (3)

5420 Advanced Food Quality Assurance (3)

5510 Meat Technology (3)

5530 Microorganisms Common in Food Products (3)

5540 Microbial Cultures in Foods (3)

Forestry, Wildlife and Fisheries

Professors:
G. Schneider (Head), Ph.D. Michigan State;
J.W. Barrett (Emeritus), Ph.D. Syracuse;

Associate Professors:
E.R. Buckner, Ph.D. North Carolina State;

Assistant Professors:
W.E. Hammitt, Ph.D. Michigan; R.J. Strange, Ph.D. Oregon State.
Forestry (396)

1620 Introduction to Forestry (3) History of forestry, protection, and use of forest stands; forest products industries; organization and agencies for establishment of forest policies; forest resources.

3200 Forest Environments and Ecology (3) Environments and ecology of forests and associated lands; emphasis on the application of ecological principles to contemporary problems. Available for non-forestry majors only. Prereq: 8 hrs of biology, botany, or zoology. 3 hrs. 3 years.

3400 Dendrology and Silvics of Woody Angiosperms (3) Classification, nomenclature, identification, and silvical characteristics of the more common woody angiosperms native to North America; native ranges, distribution patterns, and habitat requirements; regeneration requirements and life history, place in succession; ecological significance and commercial importance. Weekly field trips during scheduled lab period plus one weekend field trip. Available for graduate credit for non-forestry majors only. Prereq: 8 hrs basic biology or botany. 2 hrs and 1 lab.

3500 Dendrology and Silvics of Gymnosperms (3) Classification, nomenclature, and silvical characteristics of the major North American conifers. Distribution patterns, habitat, and commercial utilization including classification, life history, regeneration requirements, place in succession, and importance. Available for graduate credit for non-forestry majors only. Prereq: 8 hrs basic biology or botany. 2 hrs and 1 lab.

3110 Forest Measurements and Biometry (4) Measurements of individuals in animal and plant populations; linear regression; sampling of forest stands; production potential and forest resource productivity. Prereq: Plant and Soil Science 3610 and Computer Science 1410 or equivalent. 3 hrs and 1 lab. Available for graduate credit for non-forestry majors only.

3210 Wood Technology (4) Wood properties; identification of commercial woods by macro and micro characteristics. Prereq: 3040, 3050 (3050 may be taken concurrently). 2 hrs and 2 labs.

3130 Forest Protection (3) Protective agencies; fire, insects, diseases; chemical, mechanical, and biological control; prevention and suppression.

3210 Forest Resource Economics (4) Allocation of forest resources, via market and institutional systems. Application of economic theory to forest resource decision making in the private and public sector. Prereq: Economics 2120.

3220 Forest Products and Utilization (3) Harvesting, processing, marketing factors in stand conversion, and harvest cuts. Prereq: 3120.

3230 Wildlife Management (3) Lives and ecological relationships of wild animals; biological, social, and economic aspects of their management. 2 hrs and 1 lab. Available for graduate credit for non-forestry majors only. (Same as Wildlife and Fisheries Science 3230.)

3240 Introduction to Forest Recreation (3) Concepts of leisure time in recreation. Historical development of forest recreation. Forest recreation resources. Development, management, and administration of forest recreation areas and systems.

3320 Principles of Silviculture (3) Influence of site factors on reproduction, growth, development, and character of forest vegetation; classification of forest structures; silvicultural laws. Prereq: 3260 or Biology 2130, 3040, Plant and Soil Science 2130. 3 hrs.

3730 Conservation (3) Forest resources of state, nation, and world; forests in soil and water conservation; grazing and management; forest conservation programs.


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

4004 Forest Practice (3) Management of forest lands by public and private organizations; "multiple-use" concept; ecological management decisions; impact of public pressure for outdoor recreation on management decisions; management prescriptions. Prereq: 4006, 5 IG.

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

4200 Forest Watershed Management (3) Water as a forest resource; role of forests in the hydrologic cycle; control of water quantity, quality, and regime; watershed planning. Prereq: 3320, or consent of instructor. 3 hrs. Two overnight field trips.

4110-20-30 Problems in Forestry (1-6, 1-6, 1-6) Special research or individual problems in forestry. Prereq: Senior standing. Total not more than 9 hrs.

4210 Forestry Organization and Administration (3) Planning, organizing, and leadership concepts and cases; problem analysis and decision making in forest resource management. Prereq: Senior standing in forestry or wildlife and fisheries science or consent of instructor. 2 hrs and 1 lab.

4220 Forest Resource Management (4) The forest as an integrative resource use; review of traditional timber-management concepts; the multiple-use concept; valuation of forest resources for forestry and planning; taxation of forest firm. Prereq: 4210.

4230 Forest Resource Management Plans (4) Field problems and case studies in forest resource management; the forest as a system; management of forest enterprises as a producer of timber, recreational services, watershed services, and wildlife; producing multiple services; preparation of a complete plan based on optimizing forest uses. Prereq: 4210.

4240 Interpreting Forest Resources (3) Principles and techniques of interpreting forest resources; importance of the development of the interpretive aspect of management of forest resources; development and administration of interpretive services. Possible overnight field trips required. Prereq: 3240 or equivalent.

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

4340 Aerial Photography in Forest-Resource Management (3) Use of conventional aerial photographs in forest-resource management; interpretation of detail, aerial inventories, preparation of cover-type maps, uses of other remotely sensed imagery. Prereq: Civil Engr. 4260 and Forestry 3110 or equivalent. 1 hr and 2 labs.

4420 Forest Tree Improvement (3) Forest tree improvement related to silviculture; nature and purposes of tree improvement and forest genetics; principles of population and population genetics; importance of seed source variation, selection of superior genotypes, and development of superior genotypes through hybridization; seed production and seed certification. Prereq: 4006, Botany 1120. 2 hrs and 1 lab.

4430 Regional Silviculture of the United States (3) Factors that influence silvicultural management of important tree species in North America: importance of forests and forestry to a region's geography, geology, soils, climate and weather, sites and site types, ecology, problems of protection, and silvicultural management of the most important species. Prereq: 4006 and 4210.

4440 Forest Recreation (3) Forest lands as a recreation resource; interrelationships of forest recreation and other management activities; development and management of forest recreation areas; socioeconomic and political determinants of recreation development and management. Prereq: 6 credits in sociology and/or economics. Junior standing. 2 hrs and 1 lab.

GRADUATE

5000 Thesis

5110 Special Problems in Forestry (1-6)

5220 Seminar in Forest Tree Biology (3)

5230 Seminar in Forest Management (3)

5240 Seminar in Forest Genetics (3)

5250 Recreation Planning for Forests and Associated Lands (3)

5260 Industrial Forestry (3)

5270 Topics in Forest Industries Management (3)

5310 Seminar (1)

Wildlife and Fisheries Science (933)

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

3230 Wildlife Management (3) (Same as Forestry 3320.)

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

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

4500 Problems in Wildlife and Fisheries Sciences (1-6) Special research or individual problem in wildlife and fisheries science. Prereq: Senior standing. May be repeated. Maximum 9 hrs credit.

4510 Freshwater Fishery Biology (4) Principles and methods of fish population estimation; population dynamics; sampling techniques and equipment; warm and cold-water environments as they affect wildlife and fisheries. Prereq: 1 year biology and 8 hrs mathematics, or consent of instructor. 3 hrs and 1 lab or field period.

4520 Management of Lakes and Ponds (4) Principles and methods of lake and pond management for commercial and sport fisheries; design, renovation, and stocking procedures; biology and culture of managed species. Prereq: 4510 or consent of instructor. 3 hrs and 1 lab or field period.

4600 Seminar (1) Review of literature. Oral and written reports. Prereq: Senior standing. May be repeated to maximum of 3 hrs credit.

GRADUATE

5000 Thesis

5110 Special Problems in Wildlife and Fisheries Science (1-6)

5210 Seminar in Wildlife Conservation (3)
Ornamental Horticulture and Landscape Design (740)

Professors:
D. B. Williams (Head), Ph.D. Pennsylvania State; I. M. Callahan, Ph.D. Rutgers; N. P. Peacock (Emeritus), Ph.D. Michigan State.

Associate Professors:

Assistant Professor:
J. W. Day, Ph.D. Mississippi State.

3010 Landscape Gardening (3) Home ground organization and beautification; identification and use of ornamental plants; principles of planning; preparation of plans. 1 hr and 2 labs.

3020 Home Grounds Management (3) Techniques involved in managing plants around the home: outdoor propagation, transplanting, planting site selection and preparation, mechanical and chemical growth control, lawn care practices, and recognition of plant ailments; tools and equipment necessary to carry out management techniques. 1 hr and 2 labs.

3030 Plant Propagation (3) Physiology, methodology, and environmental requirements for propagation. Prereq: 8 hrs of biological science. 2 hrs and 1 lab.

3040 Floral Design (3) Principles and techniques in flower arranging with emphasis on arrangements for home, church, and special occasions. 1 hr and 2 labs.

3110 Greenhouse Management (3) Factors involved in management of greenhouses for production and research; structural, soils, pest control measures, heating, ventilating, lighting, water supply, crop succession. Prereq: Junior standing and consent of instructor. 2 hrs and 1 lab.

3210 Turfgrass Management (4) Practical turfgrass management; cultivar selection, identification, and establishment; basic applied fertility programs, mowing and irrigation practices, and thift control; management and control. Prereq: Plant and Soil Science 2130 and 8 hrs of biological sciences. 3 hrs and 1 lab.

3810 Ornamental Trees (3) Classification, identification, adaptation, and landscape design values. Prereq: Freshman biological science or consent of instructor. 3 labs.

3820 Ornamental Shrubs and Vines (3) Classification, identification, adaptation, and landscape design values. Prereq: Freshman biological science or consent of instructor. 3 labs.

3830 House Plants (3) Classification, identification, native habitat, propagation, adaptation and care. Prereq: 8 hrs of biological science or consent of instructor. 1 hr and 2 labs.

4120 Landscape Design I (4) Design and development of properties; planning, organization, selection, use and selection of plant and structural materials, methods of presentation, specifications. Prereq: Senior standing and consent of instructor. 2 hrs and 2 labs.

Plant and Soil Science (792)

Professors:
L. F. Seitz (Head), Ph.D. North Carolina State; F. F. Bell, Ph.D. Iowa State; B. V. Conger, Ph.D. Washington State; H. A. Fribourg, Ph.D. Iowa State; L. M. Josephson, Ph.D. Wisconsin; W. L. Parks, Ph.D. Purdue; B. S. Pickett (Emeritus), Ph.D. Michigan State; J. H. Reynolds, Ph.D. Wisconsin; L. N. Skold, M.S. Kansas State; M. E. Springie, Ph.D. California (Berkeley); H. D. Swingle, Ph.D. Louisiana State.

Associate Professors:

Assistant Professor:
F. L. Allen, Ph.D. Minnesota.

3180 Crop Science (4) Nature and properties of soils. Physical, chemical, biological processes in soils and their influence on plant growth. Prereq: Chemistry 1120 or 1520 or 1620, 3 hrs and 1 lab.

3320 Crop Ecology (3) Crops and environment; geographic location; site, heat, light, water and interplant relationships as a basis for judgment of cultural practices used to modify environmental factors. Prereq: 8 hrs of biological science. 2 hrs and 1 lab.

3340 Crop Physiology (3) Physiology of crop plants; growth phenomena related to crop production; use of general theories of physiology; effects of season, growth regulating substances, functions of light, heat, air, minerals, and water. 2 hrs and 1 lab. Prereq: 8 hrs of biological science.

3310 Soil Fertility and Fertilizers (4) Properties of soils in relation to plant nutrient availability and uptake. Methods of soil fertility evaluation and principles of fertilizer use; manufacture and properties of fertilizers. Prereq: 2130. 3 hrs and 1 lab.

3312 Grain and Oil Crops (3) Distribution, improvement, morphology, culture, harvesting, and utilization of corn, small grains, grain sorghum, soybeans, and related crops. Prereq: 2130. 8 hrs of biological science. 2 hrs and 1 lab.

3340 Forage Crops (4) Characteristics, adaptation, improvement, management, and utilization of grasses and legumes for pastures, hay, and silage. Prereq: 2130. 8 hrs of biological science. 3 hrs and 1 lab.

3360 Cotton and Tobacco (4) Characteristics, adaptation, improvement, culture, harvesting, and marketing of cotton and tobacco. Prereq: 2130. 8 hrs of biological science. 3 hrs and 1 lab.

3380 Fruit Crops Management (4) Soils, planting, cultivation, development of fruit crops plantations; pest control, harvesting, packing, storage and grading. Prereq: Ag Biology 3210, 3130. 3 hrs and 1 lab.

3320 Soil Management (4) Soil management for crop production including cropping systems, fertilizer use, and tillage operations for specified soil and farming conditions. Prereq: 2130. 3 hrs and 1 lab.

3325 Soils in Forestry (3) Soil as a medium for tree growth; relation of physical, chemical, and biological properties of soils to tree growth and management of forest stands. Soils properties of importance in road location, recreational development and watershed management. Prereq: 2130; Forestry 3320. 2 hrs and 1 lab.

3510 Commercial Production of Cool Season Vegetables (3) Characteristics, economic importance, adaptability, and production for fresh and processing markets; growth on greens, salad, cole, root, bulb crops, perennials and Irish potatoes. Prereq: 8 hrs of biological science. 2 hrs and 1 lab.

3520 Commercial Production of Warm Season Vegetables (3) Characteristics, economic importance, adaptability, and production for fresh and processing markets; emphasis on sweet potatoes, beans, tomatoes, pepper, cucurbits, sweet corn and okra. Need not have 3510 as prerequisite. Prereq: 8 hrs of biological science. 2 hrs and 1 lab.
310 Interpretation of Agricultural Research (3) Statistical methods applied to agriculture. Statistical methods in interpretation of research results. Prereq: Math 1550.

3710 Principles of Weed Science (4) Basic principles of weed science, history, ecology, economic losses, means of control, types of herbicides, and specific recommendations for various crop and non-crop uses. Prereq: 8 hrs biological science and 3 hrs organic chemistry. 3 hrs and 1 lab.

4110 Soil Chemistry (4) Colloidal systems; properties and behavior of colloidal soil materials; relations of chemical properties to plant nutrient availability. Prereq: 2130, Physics 1210. 3 hrs and 1 lab.

4120 Principles of Crop Breeding (4) Genetic principles and techniques used in crop improvement. Prereq: 8 hrs biological science or consent of instructor. 3 hrs and 1 lab.

4250 Agricultural Chemicals and the Environment (4) Characteristics, use, mode of action, degradation, and environmental impact of chemicals used in agriculture, forestry, and related areas with emphasis on agricultural pesticides; environmental safeguards imposed by federal and state regulations on chemical development and use. Prereq: One year biological sciences and one year chemistry. 3 hrs and 1 lab.

4320 Soil Formation, Morphology, and Classification (4) Soil formation; properties, distribution, and classification of soils; interpretation of morphology; use of soils surveys. Prereq: 2130. 3 hrs and 1 lab.

4400 Problems in Plant and Soil Science (1-6) Special research or library problems in some phase of plant and soil science. May be repeated. Maximum 9 hrs credit.


GRADUATE

5000 Thesis

5100 Special Problems in Plant and Soil Science (1-6)

5200 Soil-Crop Relationships (3-6)

5240 Soil Productivity and Management (3)

5250 Pedology (4)

5310 Design and Interpretation of Experiments (3)

5340 Soil Physics (3)

5370 Advanced Soil Fertility (3)

5390 Soil Physical Chemistry (3)

5600 Seminar (1)

5710 Advanced Plant Genetics (3)

5720 Quantitative Genetics (3)

5750 Advanced Plant Breeding (4)

5810 Crop Climatology (4)

5820 Advanced Crop Physiology and Ecology (4)

5850 Mechanisms of Herbicide Action (3)

6000 Doctoral Research and Dissertation

6100 Special Topics in Soil Science (3)

6200 Special Topics in Plant Breeding (3)

6300 Special Topics in Crop Physiology and Ecology (3)

6410 Experimental Designs (3)

6510 Growth Control with Chemicals (3)

6600 Seminar (1)

College of Veterinary Medicine

Willis W. Armistead, Dean
C.F. Reed, Jr., Associate Dean
W.H. Grau, Jr., Assistant Dean

The College of Veterinary Medicine, established in 1974, offers a professional curriculum leading to the degree Doctor of Veterinary Medicine (D.V.M.). When fully developed the College will offer graduate studies leading to the degrees Master of Science (M.S.) and Doctor of Philosophy (Ph.D.). Residency training programs in various clinical specialties also will be offered.

The College is organized into six academic departments: Animal Science (jointly with the College of Agriculture), Environmental Practice, Microbiology (jointly with the College of Liberal Arts), Pathobiology, Rural Practice, and Urban Practice.

Primary objective of the College is to educate veterinarians for private practice. However, the professional curriculum provides an excellent basic medical education, in addition to training in diagnosis, disease prevention, medical treatment, and surgery. Graduates consequentially are qualified to pursue careers in many facets of veterinary medicine and related health professions.

Most American veterinarians are engaged in private practice. The majority of these are in general practices which deal with the diseases of all kinds of animals. About one-fourth of the veterinarians in the United States are engaged exclusively in pet or companion animal practice. A growing number are concerned with the health problems of zoo animals, laboratory animals, wildlife, and aquatic species.

Veterinarians also find rewarding careers in the U.S. Public Health Service, the U.S. Army and Air Force, and in state, county, or local health agencies. A large number of veterinarians are employed by the U.S. Department of Agriculture and by state departments of agriculture for important work in livestock disease control, meat and poultry inspection, serum and vaccine production, and the protection of our country against the importation of foreign animal diseases.

Excellent opportunities exist also for veterinarians interested in research—both research for the direct benefit of animals and research conducted with animals but for the benefit of humans. Such opportunities are available at colleges and universities, and with governmental agencies, private research institutions, and biological and pharmaceutical companies.

Facilities

Administrative offices of the College of Veterinary Medicine are located in Morgan Hall on the Agricultural Campus. The Department of Animal Science is housed in Brehm Animal Science Building, also on the Agricultural Campus, and the

Department of Microbiology is located in Watters Life Sciences Building on "The Hill" of The University of Tennessee, Knoxville.

The major portion of the College is located in the new Veterinary Medicine Building on the Agriculture Campus, which houses the departments of Environmental Practice, Rural Practice, Urban Practice, and Pathobiology. Additionally, the Veterinary Hospital, clinic, and the Agriculture/Veterinary Medicine Library are contained within this modern structure of 246,000 gross square feet.

The College has also developed research facilities on Cherokee Farm adjacent to the UT Hospital. Satellite teaching-research facilities are also being developed in Middle and West Tennessee.

Admission Requirements

Admission to the professional program of the College of Veterinary Medicine is limited to that number for which an education of high quality can be provided with the resources available to the College.

To qualify for admission a candidate must have completed at least the following minimum preveterinary requirements:

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Minimum Credits</th>
<th>Quarter Credits</th>
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<tbody>
<tr>
<td>English, including speech</td>
<td>12</td>
<td>8</td>
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<tr>
<td>Humanities</td>
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<tr>
<td>Social sciences</td>
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<td>Mathematics</td>
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<td>Organic</td>
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<tr>
<td>Biochemistry</td>
<td>6*</td>
<td>4*</td>
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<tr>
<td>Physics</td>
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<tr>
<td>Biology</td>
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<td>8</td>
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<tr>
<td>Microbiology</td>
<td>4</td>
<td>3</td>
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<tr>
<td>Animal science, including</td>
<td>13</td>
<td>9</td>
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<tr>
<td>nutrition and genetics</td>
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*Excluding laboratory.

Includes history, literature, music or art appreciation, philosophy, religion or foreign language.

Includes economics, anthropology, political science, psychology, sociology and geography.

Preveterinary requirements may be completed in any accredited college or university which offers courses equivalent to those at The University of Tennessee.

The College of Agriculture of The University of Tennessee offers an excellent 3-year preveterinary curriculum which satisfies all the course requirements for admission to the College of Veterinary Medicine. (See description of Preveterinary Medicine curriculum, College of Agriculture.) Students who are admitted to the College of Veterinary Medicine following completion of this preveterinary curriculum will receive a Bachelor of Science degree in Animal Science upon completion of the first year (3 quarters) of the professional veterinary medicine curriculum. (See specific description see Preveterinary Medicine curriculum, College of Agriculture.)

Admission Procedure

Admission of new students will be for the fall quarter each year. Applicants will be screened carefully by a faculty committee to determine those best
qualified for admission within the College enrollment quota.

Applicants will be considered in the following order of priority: (1) residents of Tennessee; (2) legal residents of states with which The University of Tennessee has contracts for veterinary medical education; (3) residents of other states or foreign countries.

Forms and instructions for making application for admission may be obtained from:
Director of Admissions
320 Student Services Building
University of Tennessee
Knoxville, Tennessee 37916

Applications must be completed and mailed as to reach the Director of Admissions by January 15 each year. 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 of Veterinary Medicine.

Course Load

The professional curriculum of the College of Veterinary Medicine requires a specific number of hours for each quarter. A student may enroll for fewer or more than that number only with the permission of the dean. Because of the sequential and highly integrated character of the professional curriculum, all courses in a given quarter are considered prerequisite to those in the succeeding quarter.

Extramural Programs

The opportunity to participate in off-campus learning experiences may be available for a limited number of students during the elective portion of the third year of the professional curriculum. Selection of an extramural learning experience will require approval by the department concerned and the College of Veterinary Medicine Curriculum Committee five weeks prior to registration. The extramural program identified by the student must represent a learning experience not available within the University of Tennessee, Knoxville.

Professional Curriculum

The professional curriculum in veterinary medicine is an 11 academic quarter, year-round program, including summers. The first year (3 quarters) consists mostly of preclinical subjects such as anatomy, physiology, microbiology, parasitology, and general pathology. The second year (4 quarters) includes the study of diseases, their causes, diagnosis, treatment, and prevention. The final year (4 quarters) is devoted to intensive training in the solving of animal disease problems, including extensive clinical experience in the teaching hospital. The curriculum also provides for education in the science and art of veterinary medicine and in paramedical subjects such as animal behavior, medical communication, professional ethics, jurisprudence, economics, and practice management.

ELECTIVES

Electives include but are not limited to:
Animal Science 3420, 4210, 4330, 4340, 4510, 4620, 4630, 4840, 4850, 4860, 5110, 5210, 5230, 5240, 5311, 5322, 5333, 5344, 5410, 5710, 5720, 5910, 6150, 6160, 6211, 6220, 6230, 6311, 6322, 6411, 6420, 6611, 6910; Environmental Practice 8660, 8670; Pathobiology 8760, 8770; Microbiology 4110, 4140, 4150, 4330, 4420, 4103, 5310, 5360, 5510-30, 5730, 5750, 6410, 6720, 6730, 6740; Rural Practice 8860, 8970; Urban Practice 8860, 8870, 8875; Veterinary Medicine 8460.
Effective fall quarter, 1978.

FIRST YEAR

Fall Quarter

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<tr>
<th>Course Code</th>
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Winter Quarter

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Spring Quarter

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<tr>
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TOTAL: 57 hours

SECOND YEAR

Summer Quarter

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Fall Quarter

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Winter Quarter

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Spring Quarter

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TOTAL: 85 hours

THIRD YEAR

Summer and Fall Quarters

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<td>Urban Practice 8800</td>
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<td>Pathobiology 8760</td>
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Winter and Spring Quarters

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<thead>
<tr>
<th>Course Code</th>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Electives</td>
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TOTAL: 222 hours

*During the third year one-half of the students in that class will progress through Rural Practice 8900 and the other half through Urban Practice 8800 during the summer quarter. During the fall quarter, the groups will reverse for Rural Practice 8900 and Urban Practice 8800. Identification of electives by the student will be made with the recommendations and guidance of a faculty adviser.

Departments of Instruction

Animal Science (114)—Veterinary Medicine

Professors: R.R. Johnson (Head), Ph.D. Ohio State; M.C. Bell, Ph.D. Oklahoma State; J.K. Blatner, Ph.D. Ohio State; C.C. Chamberlain, Ph.D. Iowa State; S.L. Hansard, Ph.D. Florida; H.M. Jamison, Ph.D. Tennessee; J.B. McLaren, Ph.D. Auburn; M.J. Montgomery, Ph.D. Wisconsin; G.M. Merriman, D.V.M. Michigan State; R.L. Murphy, Ph.D. Wisconsin; D.O. Richardson, Ph.D. Ohio State; H.V. Shirley, Ph.D. Illinois; R.R. Shrode, Ph.D. Iowa State; E.W. Swanson, Ph.D. Missouri; R.L. Tugwell, Ph.D. Kansas State; C.E. Wylie (Emeritus), A.M. Missouri.


Assistant Professors: A.E. Cartee, D.V.M. Kansas State; J.A. Corrick, Ph.D. Tennessee; D.G. Doyle, Ph.D. Cornell; J.P. Hitchcock, D.V.M. Michigan State; S.A. Kincaid, D.V.M. Purdue; R.G. Schaub, Ph.D. Washington State; M.H. Sims, Ph.D. Auburn; J.D. Smalling, Ph.D. Texas A & M.

Instructors: N.G. Kincaid, M.S. Purdue; G.C. McGhee, B.S. Tennessee.

In addition, academic expertise of staff members at CAARL and Oak Ridge is used on appropriate occasion.

8240-50 Veterinary Physiology (3, 4) Introduction to concepts and problems in physiology which form a base for clinical applications and for formal training in pharmacology, medicine, pathology and surgery. Order of sequence: respiratory, cardiovascular, digestive, and genito-urinary, etc. Three hrs of lecture for 8240, 4 hrs of lecture for 8250.

8510-20 Histology (4, 4) Microscopic anatomy of respiratory, cardiovascular, digestive, urinary, and reproductive systems; integration; and special sense organs. Sequence of presentation as listed above. Correlated with 8240-50. Two hrs of lecture and two labs.
Environmental Practice (346)

Professor: H. Hutchins (Head), D.V.M. California (Davis), Ph.D. Florida.
Associate Professor: J.W. Oliver, D.V.M. Ph.D. Purdue.
Instructor: J.L. Schollen, D.V.M. Oklahoma State.

8600 Basic Clinical Rotation in Environmental Practice (2) Clinical experience in laboratory animal and zoo animal medicine, epidemiology, and other related disciplines. May be repeated.

8611-12 Pharmacology (1, 2) Theories of transport across membranes, introduction to principles of drug action and distribution. Receptor theory, adverse drug reactions; correlated with Animal Science 2845-50. One-hour lecture for 8611; two hours of lecture for 8612.


8670 Special Problems in Environmental Practice (2-10) Special problems in public health and epidemiology. May be repeated.

Microbiology (685)—Veterinary Medicine


Associate Professors: J.M. Becker, Ph.D. Cincinnati; T.C. Montie, Ph.D. Maryland; W.S. Rigsby, Ph.D. Yale; B.T. Rouse, B.V.S. University of Bristol (England); Ph.D. University of Guelph (Canada).

Assistant Professors: D.A. Bernis, Ph.D. Cornell; D.A. Brian, D.V.M.; Ph.D. Michigan State; R.V. Miller, Ph.D. Illinois; G.S. Sayer, Ph.D. Idaho.

8101 Microbiology I (5) Part 1, Basic microbiology: microbial structure, metabolism, macromolecules and genetics. Part II, Immunology, nonspecific and specific humoral and cellular host response to infection (and "foreign" material), immunopathology, and certain aspects of immunogenetics (e.g., transplantation). Three hours of lecture and two labs.

8102 Microbiology II (3) Part I, Bacterial pathogenesis: disease patterns and mechanisms of bacterial pathogenesis related to their properties including toxins, capsules, enzymes and other bacterial products. Part II, Viral pathogenesis: disease patterns and mechanisms of viral pathogenesis related to their properties including acute, latent, and "slow virus" infections, and cancer. Two hours of lecture and one lab.

8103 Microbiology III (3) Part I, Viral pathogenesis continued. Part II, Medical microbiology: disease patterns and mechanisms of pathogenesis of yeasts, molds and "imperfect" fungi, related to their properties, including spores, dimorphism, etc. Two hrs of lecture and one lab.

Pathobiology (742)

Assistant Professors: J.R. Easley, D.V.M. Auburn; S. Patton, Ph.D. Kentucky.
Instructor: L.W. Shipman, D.V.M. Texas A & M.

8700 Basic Pathobiology Rotation (3) Rotation through laboratory services of Department of Pathobiology. Includes practice and/or demonstrations in laboratory diagnosis including postmortem, clinical laboratory, parasitologic and microbiologic techniques. May be repeated.

8710 Veterinary Pathology (6) Principles of pathology including an understanding of cell growth, inflammation, and neoplasia; introduction to clinical hematology. Three hrs of lecture and two labs.

8730 Veterinary Parasitology (4) Basic principles of parasitology (protozoan, helminthic, and entomology) and their relation to disease in animals. Three hrs of lecture and one lab.

8760 Advanced Pathobiology (2-20) Designed to provide student with particular interest in laboratory diagnosis further training in these techniques and additional experience in interpretation of observations. Prereq: Environ. Pract. 8660, Pathobiology 8760, Rural Prac. 8900, and Urban Pract. 8800. May be repeated.

U.S. Funds of Large Animal Practice (18) Basic rotations in food animal practice, equine practice, ambulatory, herd health, and radiology. Each rotation will encompass seminar participation, reading assignments, and supervised practice.


8860, Pathobiology 8760, Rural Pract. 8900, and Urban Pract. 8800. May be repeated.

8970 Special Problems in Large Animal Medicine, Surgery, and Therapeutics (2-10) Provides students opportunity to emphasize specific career objectives. Prereq: Environ. Pract. 8860, Pathobiology 8760, Rural Pract. 8900, and Urban Pract. 8800. May be repeated.

Urban Practice (986)

Professor: E.D. Gage (Head), D.V.M. Texas A & M.

8800 Basic Clinical Rotation in Urban Practice and Small Animal Clinic (16) Introductory clinical rotation in anesthesiology, medicine, radiology, and surgery with supervised responsibility for diagnosis, care, and treatment of assigned clinical patients.


8780 Special Problems in Urban Practice and Small Animal Clinic (2-10) Pertains to special problems in anesthesiology, medicine radiology and/or surgery in various specialty areas related to diseases of small companion animals. Prereq: Environ. Pract. 8660, Pathobiology 8760, Rural Pract. 8900, and Urban Pract. 8800. May be repeated.

8875 Special Clinical Rounds and Seminar in Urban Practice and Small Animal Clinic (1-4) Advanced clinical rounds and seminars in the various specialty disciplines, such as neurology, cardiology, surgery, ophthalmology, etc. Prereq: Environ. Pract. 8660, Pathobiology 8760, Rural Pract. 8900, and Urban Pract. 8800. May be repeated.

Interdepartmental Offerings

Veterinary Medicine (987)

8100 Professional Relations (1) Professional speaking and writing, research design and data interpretation, and public relations. One lab.

8310 Introduction to Veterinary Medical Practice (2) Species, breed identification; basic care, feeding and handling; introduction to physical diagnosis, intravenous techniques, blood sampling, etc. One-hr lecture and one lab.

8311 Introduction to Veterinary Medical Practice (2) Physical diagnosis, history taking, and client relations; anesthetic principles, agents, and techniques. One-hr lecture and one lab.

8460 Extramural Programs (2-20) Supervised off-campus educational program with an approved institution. Limited enrollment. Prereq: Consent of department and the College of Veterinary Medicine Curriculum Committee.

8312 Introduction to Veterinary Medical Practice (3) Basic surgical principles, preparation for surgery, wound healing and suturing; fundamentals of radiology. Correlated with 8320. Two hrs of lecture and one lab.
8320 Medical Science Interactions (3) Multidiscipline laboratory. Demonstrations and surgical experiments to illustrate variety of physiologic and pharmacologic principles. Emphasis on anesthetic techniques, basic clinical chemistry. (i.e., acid-base) provides appreciation for survival and emergency techniques and for drug action. Core-related with 8312. Two hrs of lecture and one lab.

8340 Integumentary System (4) Diseases of integumentary system of animals, with emphasis on laboratory examination, interpretation of pathologic features, diagnosis, and treatment.

8341 Hemopoietic System (3) Pathogenesis, diagnosis, and clinical management of diseases of hemopoietic and lymphoid organs and tissues.

8342 Alimentary Tract (9) Physiological basis, pathogenesis, diagnosis and treatment of diseases of alimentary tract and digestive organs.

8343 Patterns of Disease (5) Host-agent relationship in disease of animals. Pathogenesis, laboratory diagnosis, control, and public health significance are the major components. Principles of epidemiology and their application in the study of diseases in animal populations illustrated.

8344 Focal Problems (1) Series of sessions to consider specific diagnostic problems or pararemedic subjects important to veterinary medical practice. Some sessions consider differential etiology, diagnosis, and treatment of certain disease signs or symptoms; others consider implications for veterinarian of medical jurisprudence and ethics, practice economics, and veterinary history. May be repeated. S/NC.

8350 Endocrine-Reproductive System (7) Reproductive diseases of animals with emphasis on anatomic and functional aspects. Biochemical and physiologic basis of endocrine diseases of animals, including diagnosis, treatment, and management. Endocrine interrelationships, including methods of examination of mammary glands and reproductive tract, diagnosis, and treatment.


8352 Cardiovascular-Respiratory Systems (7) Pathogenesis, diagnosis, and management of cardiovascular and respiratory diseases of animals. Anatomic, physiologic, and pharmacologic principles providing the basis for medical and surgical treatment.

8353 Metabolic Diseases (2) Biochemical and physiologic determinants of metabolic diseases of animals, their diagnosis and prevention.

8360 Musculoskeletal System I (6) Diagnosis and treatment of muscular and skeletal diseases of small animals, emphasizing pathologic changes, radiologic techniques, interpretation of radiographs, and surgical procedures.

8361 Musculoskeletal System II (6) Diagnosis, prognosis, and management of musculoskeletal diseases of large animals, with emphasis on functional anatomy, radiographic techniques and interpretation, and surgical procedures applicable to equines and ruminants.

8362 Toxicology (3) Pharmacologic basis and pathologic features of diseases of animals caused by common toxic chemicals, with emphasis on clinical manifestations, diagnosis, and treatment.

8363 Public Health (2) Public health aspects of veterinary medicine and nature of related laws, ordinances and regulations. Veterinarian's role in the protection of environment, ecology, and quantity and quality of food.

8364 Nutritional Diseases of Animals (1) Biochemical and physiologic determinants of nutritional disease, with rational bases for treatment and prevention.

8365 Radiology (2) Advanced and special techniques in radiology.

8370 Neurosciences (9) Normal and abnormal neural structure and function in animals, with emphasis on clinical neurology and neuropathology.
School of Architecture

Donald D. Hanson, Dean
William J. Lauer, Assistant Dean

The School of Architecture presents a comprehensive program of undergraduate courses, offering opportunities for both general studies and professional specialization. The intent of the school's program is to complement the University's learning opportunities by providing curricula and course offerings in the art and science of design. Accordingly, the program is composed of informational, analytical, and integrative studies related to the human role in shaping and changing the built environment. The welfare of this environment, which is a vital factor in the well-being of people everywhere, depends upon the knowledge and skill which those educated in the design sciences can contribute to continuing processes of developmental change.

A goal of this revised program is to provide undergraduate studies in scholarly and professional areas related to the knowledge base and methodologies for working with the built environment, while at the same time utilizing the school's resources, faculty, and facilities to their maximum effectiveness.

Facilities

The design laboratories, classrooms, computer room, library, and administrative offices of the school are located in three buildings—Estabrook Hall, Melrose Annex, and Alumni Gym. It is entirely appropriate that one of the newest schools, and particularly architecture, should be temporarily housed in venerable Estabrook Hall constructed in 1888. Other disciplines that share direct interests with the school—engineering, fine arts, and industrial arts—are also located in the building. The Melrose Annex provides additional space for upperclass research and design activities.

The principal library holdings of the school are contained in the James D. Hoskins Library. Extensive general collections and reference volumes in architecture and the fine arts are housed there. These sources are augmented by the branch library of the school where students have access to all the reference books in current use.

Student Sponsorship

A number of $500 sponsorships are made available each year by architectural firms of Tennessee. These grants cover tuition and fees, travel expenses to a designated U.S. city for study purposes, subscription to an architectural journal, purchase of special drafting equipment, and purchase of special reference books for the student recipients' personal libraries. 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

ROBERT B. CHURCH MEMORIAL LECTURESHIP

The income from the endowment is used to sponsor outstanding speakers from the profession.

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 for the School of Architecture.

Self assessing will not be permitted in the School of Architecture. Students must plan their schedule by consulting with an assigned adviser in the student's area of concentration. Electives will be chosen with the concurrence of the adviser and with full consideration of the necessary prerequisites.

Requirements for Admission to Second-Year Architecture

(1) Satisfactory completion of first year architectural program with grade point average at least 2.3; exceptions may be made by petition only;

(2) a personal interview and evaluation of applicant's work by a designated member of the School of Architecture;

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

Students must maintain an overall 2.3 grade point average by the end of 48 hours (attempted) in order to maintain "full status" in the program. Delinquent students will be put on "temporary status" for one quarter. These students will have one quarter to raise overall GPA to 2.3 or have minimum 2.3 on each quarter's work until overall average is raised to 2.3. If 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 3001-02-03. Students who register for a third-year design course holding first- or second-year deficiencies may be required to drop the course at any point during the quarter.

Minor

An undergraduate minor in architecture is offered in order to enable students in other colleges to pursue studies in architecture which are relevant to their major areas of concentration. The minor will consist of not less than 18 hours. Persons interested must obtain the consent of the School of Architecture Current Curriculum Committee and dean of the School of Architecture, who will approve specific programs of study proposed by students.
Program for Architecture

Degree: Bachelor of Architecture

Major: Architecture

<table>
<thead>
<tr>
<th>Concentrations:</th>
<th>Design</th>
<th>History/ Humanities</th>
<th>Administration</th>
<th>Technology</th>
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<td></td>
<td>3. Development</td>
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Through controlled electives, required in this core, students can intensify and extend their professional skills and technical knowledge.

ACCELERATED CORE

Students demonstrating an exceptional proficiency in any of the professional core subjects may be approved for selected accelerated studies, thereby reducing the time needed to complete core requirements and allowing more time for concentration in the student's chosen area. Formal review and approval by the school are required of all accelerated core candidates.

Curricula for Architecture

All students studying for a Bachelor of Architecture degree will include the following requirements in their first three years of study. During the fourth and fifth years, the students' work will be concentrated in one of the following tracks: design, history, criticism, restoration/preservation, management, production, development, structures, systems building, or environmental controls. Refer to numbers in the 4300 sequence for architecture design lab electives. Any exceptions to the curriculum outline have been footnoted. For any additional specialized requirements, the student should inquire at the School of Architecture.

SERVICE PRACTICUM REQUIREMENT

A three-month, non-credit internship in an architect's, engineer's, or contractor's office or related work may be approved by the school. This must be evidenced by a letter from the employer indicating type and quality of student's work and time of employment prior to graduation.

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<th>I</th>
<th>II</th>
<th>III</th>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Third Year</td>
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<tr>
<td>Architecture 3001, 3002, 3003</td>
<td>8</td>
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<tr>
<td>Controlled elective or track courses</td>
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</table>
| TOTAL: 144 or 148 hours

DESIGN CONCENTRATION

ARCHITECTURAL DESIGN TRACK

Fourth Year
| Architecture design lab electives | 8 | 8 | 8 |
| Controlled electives | 4 | 4 | 4 |
| Electives | 4 | 4 | 4 |

Fifth Year
| Architecture design lab electives | 8 | 8 | 8 |
| Controlled electives | 4 | 4 | 4 |
| Electives | 4 | 4 | 4 |
| TOTAL: 240 hours

HISTORY/HUMANITIES CONCENTRATION

HISTORY TRACK

Fourth Year
| Architecture design with electives | 8 | 8 |
| Architecture 4311 | 8 |
| Architecture 3101, 3102, 3137 | 4 | 4 |
| History 1510-20 | 4 | 4 |
| Controlled electives | 4 | 4 |
| TOTAL: 240 hours

CRITICISM TRACK

Fourth Year
| Architecture design lab electives | 8 | 8 |
| Architecture 4311 | 8 |
| Architecture 3101, 3102, 3137 | 4 | 4 |
| History 1510-20 | 4 | 4 |
| Controlled electives | 4 | 4 |
| TOTAL: 240 hours

RESTORATION/PRESERVATION TRACK

Fourth Year
| Architecture design lab electives | 8 | 8 |
| Architecture 4311 | 8 |
| Architecture 3101, 3102, 3137 | 4 | 4 |
| History 1510-20 | 4 | 4 |
| Controlled electives | 4 | 4 |
### Second Baccalaureate Degree Program

A program leading to a Bachelor of Architecture is available for students who already have a bachelor's degree or an advanced degree in another field.

This program consists of a core of accelerated and professional courses making up the knowledge and skills fundamental to prequalification for professional competence. The length of the program is three years. Advanced standing through proficiency credit may be given to applicants who have had advanced academic work in architecture. Exceptional professional experience may also be considered.

Applicants must show at least a 2.5 overall grade point average as well as goals and abilities appropriate to the program. Prerequisite courses include Math 1840-50 or 1550-60 and Physics 2240-50-60 or their equivalents.

The Second Baccalaureate Degree Program will be replaced by a graduate program upon its approval.

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours/Credit</th>
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<tr>
<td>Architecture 4020-21-23</td>
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<td>Architecture 4022-24</td>
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<tr>
<td>Architecture 3016, 4029, 4033</td>
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<tr>
<th>Third Year</th>
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<tr>
<td>Electives</td>
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### Controlled Electives List

**DESIGN CONCENTRATIONS**

- Accounting 2110-20
- Anthropology 2510, 2530, 3410
- Audiology and Speech Pathology 4750
- Architecture 2101, 2102, 3113, 3112, 3110, 4110, 4137, 4160, 4710, 4720, 4721-22, 4725-26-27, 4734, 4735, 4736-37, 4739, 4771-72-73, 4775, 4780, 4785, 4900, 4910; Art 3735, 3736, 3745, 3746, 3765; Botany 1110-20, 3030, 3090; Broadcasting 3650, 4035, 4036; Business Law 4110; Child and Family Studies 2110, 3510, 3515, 3520, 4260, 4430, 4830; Chemistry 1110-20-30; Civil Engineering 4430; Crafts, Interior Design and Housing 3125, 3256, 4155, 4156, 4130, 4310; Communications 1110; Computer Science 2010, 3410, 4410; Educational Curriculum and Instruction 3310; Economics 2110-20-30, 3110, 3340, 4110; Electrical Engineering 4850; Environmental Engineering 3000, 4770; Finance 3110, 3120-30, 4350-80, 4370; Food Systems Administration 3310; Geography 2400, 3000, 3430, 3520, 3530, 4720, 4770; Geology 3510, 3520; History 4670, 4770; Industrial Engineering 4150; Journalism 3710; Landscape Architecture 3110, 3210, 4110; Macromolecular Engineering 4220; Office Administration 2750; Philosophy 1510-20; Physical Education 3090; Political Science 4580-80; Psychology 2500, 2530, 3150, 3210, 3430, 4230; Real Estate 2610, 3610, 4120, 4130; Sociology 3010, 3130, 3410, 4330; Statistics 2110, 3220, 3310; Zoology 3010-20-30.

**HISTORY/HUMANITIES CONCENTRATION**

- Agricultural Economics 4330; Rural Sociology 3420; Anthropology 3575, 3580, 3610, 3640, 3660, 3710, 4740; Architecture—all courses; Art 2715, 2725, 3704, 3705, 3715, 3716, 3725, 3726, 3735, 3745, 3746, 3747-56-57, 3765, 3766, 3797, 3776, 3777, 3811; Classics 3210, 3220, 3230, 3310, 3320, 3330, 3340, 3350; Engineering Studies 4100, 4200, 4300; English—all courses 2000 level and above; Environmental Engineering 4820; Geography 3000, 3430, 3450, 3490, 4240; Germanic and Slavic Languages—all German and Russian courses; History—all courses 2000 level and above; Philosophy 3330, 3470-50, 3910; Romance Languages—all Arabic, French, Italian, Portuguese and Spanish courses; Sociology 3410, 3420.

**ADMINISTRATION CONCENTRATION**

- Accounting 4510, 4515, 4520, 4525, 4530, 4531, 4532, 4535, 4540, 4545, 4550, 4560, 4565; Business Administration 1110; Business Law 4110, 4120, 4130, 5050; Economics 2110-20-30, 3050; Finance 3510, 3512-30-50; Journalism 3710; Management 3010, 5050; Marketing 3110, 3120, 5050; Office Administration 4510, 4540, 4550; Real Estate 2610, 3610, 3630, 4110, 4120, 4130; Statistics 2110.

**TECHNOLOGY CONCENTRATION**

- Architecture 3712, 4710, 4711-12, 4715, 4721-22, 4725-26-27, 4731-32, 4734, 4735, 4736-37, 4739, 4771-72-73, 4775, 4780, 4785, 4910, 4920; Audiology and Speech Pathology 4750; Civil Engineering 3210, 3230, 3310, 4110, 4230, 4410, 4420, 5110-20, 5270; Computer Science 4310; Electrical Engineering 4850; Environmental Engineering 3000; Geography 4720; Industrial Engineering 4150; Mathematics 2610; Mechanical Engineering 4220; Planning 4100, 5230; Statistics 3450; Theatre 3221-22, 3431-42.

### Systems Building Track

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*Mathematics 1900 may be substituted for Mathematics 1850. Credit for either course will count as controlled elective credit.

*Students in Technology Concentration take a controlled elective and Architecture 4150.

*Track is governed by the controlled electives.

*The last two quarters of architecture design lab elective may be substituted by controlled electives upon approval of faculty adviser.
1001 Introduction to Human and Environmental Properties and Transactions (4) Schematic, architectural and graphic studies describing and analyzing human-environment systems. Interrelation of context, values, behavior, and design decisions.

1002 Visual Studies (4) Classification and properties of visual perceptions of organisms. Relationship of properties of visual elements and their ability to communicate information and create legible visual systems.

1003-04-05 Introduction to Architecture (1, 1, 1) Lectures in field of architecture with special emphasis on design methodologies and analytic techniques. Introduction to visual organization, structures, environmental controls, behavioral and natural systems, design philosophy, history and criticism. Presentations include lectures by faculty from this school and university, visiting speakers, and multimedia programs. Held once a week. In addition, special lectures are announced each quarter.

1006 Physical Systems (4) Introduction to properties of space-spanning and environmental control systems. System properties analyzed in order to relate direct and secondary investigations of material composition component structures, and intra-inter system behavior. Anticipated sensory and environmental response to systems variations shall be studied.

1007 Historical Studies I (4) Introduction to evolution of architectural periods with selected illustrations of their relationships with historical and cultural developments to the built environment from antiquity through Byzantine period. Applications to present-day design issues.


2001 Basic Design and Analysis I (4) Environmental design analysis; decision making and evalua- tion methodologies applied to problems of human scale; problem-solving application. Pre- req: Second-year standing; coreq: 2000.


2007 Historical Studies II (4) Relationship of historical and cultural developments with the built environment from Romanesque period through neoclassicism. Applications to present-day design decisions. Study of historical research methods and analysis. Prereq: 1007.


2014 Analytical Studies II (4) Introduction to basic research methods and to environmental problems. Research methods and skills necessary for collecting, organizing, manipulating and displaying (communicating) a wealth of diverse data. Research and evaluation purposes. Course objective is to qualify students with concepts and techniques to utilize electronic data processing technologies as a research tool.


2101 Pre-modern Survey I (4) Classical tradition in architecture from ancient to Renaissance and neoclassical periods.

2102 Pre-modern Survey II (4) Medieval and Byzantine architecture.

3001 Architectural Design Lab I (4) Controlled exercises designed to demonstrate integration and application of design theory and metho- dies into design process. Experiences directed to aspects of architectural issues such as site anal- ysis and development, building components.

3002 Architectural Design Lab II (4) Experimental exercises designed to demonstrate integration and application of design theory and methodologies into a creative design process. Experiences directed to aspects of architectural issues such as site analysis and planning, facility program- ming and program analysis, and integration of multiple complex architectural systems into comprehensive architectural resolutions.

3003 Architectural Design Lab III (4) Advanced exercises designed to refine fundamental abili- ties in problem seeking, problem solving, and communication skills for integration of complex architectural design process. Empha- sis on integration of complex systems in building form and structure.

3007 Historical Studies III (4) Relationship of his- torical and cultural events from Industrial Revolu- tion which gave rise to modern movement in architecture and design. Applications to present- day issues. Changing concepts of ethics, aesthetics, and architectural theory. Prereq: 1007 and 2002.

3013 Professional Practice I (4) Survey of legal responsibilities of architect in serving contract- ual arrangements; contract documents, contract administration, codes and zoning regulations, liabil- ity and insurance factors in building delivery. Prereq: Third-year standing.


3015 Service Practice (4) Employment for onequarter in public office or architect or other projects approved by the school. Prereq: 3001 and 3002.

3016 Structural/Mechanical Applications to a Built Environment (4) Case study of small-scale built environment with emphasis on applications of structural and mechanical systems. Analysis and selection of components with purpose of in- tegrating and selecting structural and mechanical components into a unified design solution. Involves individual and group participation, technical analysis and formal presentation. Prereq: 2006, 2013, 2016.

3017 American Architecture I (4) Architecture in United States since 1867: modern, neoclassical, and Greek Revival traditions; eclecticism.

3012 History of the City (4) Evolution of town planning theories; modern theory; city of today and tomorrow.

3110 Oriental Survey (4) Architecture of non-Western tradition.

3113 Contemporary Architecture (4) Styles and theories from 1885 to present; design and technology; definition of architecture.

3115 Latin American Survey (4) Native and colo- nial architecture in Central and South America.

3120 Indigenous Traditions (4) Vernacular build- ing traditions in non-European civilizations.

3125-26 History of Architectural Theory I, II (4, 4) History of construction techniques, hard- ware, materials and systems; I: before 1850; II: 1850 to present.

3130 History of Architectural Theory (4) Philoso- phies of science, the emergence of technology, and theories of design since 1500.

3135 Tennessee Architecture (4) Immigrant tradi- tions: colonial development, national styles, contemporary architecture.

3137 Architecture Since 1945 (4) New directions and views of the future.

3140 Studies of Architectural Writing (4) Survey of European architectural writers from Pugin to the present; the relation between literature and design. May be repeated. Maximum credit 8 hours.

3701-02 Application of Computer in Architecture (4, 4) Survey of computer applications in the architectural profession. Computer graphics; use of commercial programs and systems; program planning and implementation. Prereq: 3701 for 3702.

3712 Mathematical Models in Architecture (4) Illustrates and develops application of mathemati- cal methods in architectural science. Survey and classification of effective mathematical models of problems in architectural science, including numerical methods and use of digital computer.

3905 Architectural Graphics (4) Principles and techniques of orthographic and perspective drawing in graphic communication of architectural concepts and solutions. Introduction of techniques for delineation of form and space, material, light, texture, shadow, and figural interest. Both freehand and mechanical drawing tech- niques developed through variety of media. Prob- lems of graphic and layout decisions in relation- ship to audience and desired presentation impact and sophistication addressed.

3910 Research Methods for Designers (4) General research methods of design. Basic research methods and techniques to analyze design problems and to develop appropriate research methods for the design process.

3920 Environmental Design Education: Problems, Practice and Strategies (4) Focus directed at examining existing models of learning, educa- tional, assessment, curricula goals, objectives and implementation formats, and methods of program evaluation. Role of existing architec- tural professional practice and its relation to design education explored. Required for teaching assignments in architecture. Prereq: Consent of Instructor.
410 Aesthetics in Architecture (4) Architecture among the arts; theory and philosophy of space, imagination, design and materials.

411 Special Topics in Architectural History, Criticism and Theory (4) Design and presentation of material in a specialized area.

420 Introduction to Site Planning (8) Analysis of site factors; use of environmental concept, social and psychological aspects of site locations and development, study of movement systems and program development, site design, including locations and layout of streets and utilities, earthwork, site management and development.

421-22-23 Macro Studies Laboratory I, II, III (8, 8, 8) Design studies of large scale and complex nature with emphasis on reinforcing architectural design process and introducing principles and techniques used in urban and regional design and planning process. Pre-req: 4330.

430 Architecture Research Laboratory (8) Research projects on specific architectural subjects under the direction of faculty members.

4330 Micro Studies Laboratory I, II, III (8, 8, 8) Series of design exercises to demonstrate range of human use and utilization of interrelationship of micro environmental elements and systems.

4340 Independent Studies Lab I (8) Individual architectural or related projects under direction of faculty members. Credit adjusted to nature of problems and level of effort. May be repeated. Maximum credit 24 hrs.

4350 Visiting Lecturers Laboratory (8) Architectural or related projects under direction of visiting lecturers. Credit determined by visiting lecturer. May be repeated. Maximum credit 16 hrs.

4351 Build Laboratory (8) Design and construction under the direction of faculty member of small scale building project for a public service agency or organization. Work with client includes building specification and ordering, subcontracting, and on-site construction.

4352 Architectural Service Laboratory (8) Off-campus studies under direction of architect. Credit determined by on-site performance. May be repeated. Maximum credit 16 hrs.

4353 Development Laboratory (8) Directed studies in development of real property. Studies of use feasibility, economics, finance and marketability, environmental impact, social considerations, and consequences.

4360 Remote Centers Laboratory (8) Program extension in remote locations of various tenure.

4370 Architecture-Engineering Laboratory (8) Directed research application in new structural concepts. Architectural projects of large scale and complex nature with emphasis on the engineering system of codes, economics, urban design, utility systems, structural, environmental controls and construction.

4390 Interdisciplinary Laboratory (8) Action-oriented joint studies laboratory in environment-related problems utilizing varied composition of sources and undertaken by students and faculty both in and out of the School of Architecture.

4501 Management Design I (8) Using the lab activity to explore a simulation study aspects of project management and construction management, the process of making decisions and the understanding of their ramifications; the concept of decisions, design and the process of delivery is main theme.

4502 Administrative Design I (8) Lab simulation of office experience in project planning and control, programming and preparation of contract documents.

4503 Management Design II (8) Advanced work in the simulation of management aspects of architecture. Use of computer as a management tool and simulation of an office situation is conducted in the lab. Prereq: Consent of instructor.

4504 Administrative Design II (8) Lab simulation of project with emphasis on production, specifications, estimating, materials, and codes. Pre-req: 4501.

4510 Project Management (4) Principles, methods, and application of project management to the total building process. Project manager, his functions, responsibilities and activities investigated through case studies, job history reviews, and project simulation.

4515 Construction Management (4) Principles, methods, and application of construction management to the total building process. Project manager function, responsibilities, and activities investigated through case studies, job history reviews, and project simulation.

4520 Professional Services (4) Marketing of architectural practice by study of cases, theories, public relations procedures and understanding sales of architectural services, both basic and comprehensive.

4525 Personnel Relations (4) History of practice of architecture emphasizing personnel policies, theory of personnel relations, benefits, and unionization.


4532 Architectural Practice II (4) Analysis and study of contracts, insurance, taxes, and the legal position and liabilities of architect.

4535 Advanced Contracts (4) Study of contractual problems relating to architect, owner, contractor and subcontractor.

4540 Design Process, Decision Determination (4) Principles and theories of making decisions in relation to scheduling of architectural activities during building process.

4545 Programming (4) Theories and procedures for writing programs emphasizing computer application and research and development.

4550 Codes and Zoning (4) Theory, review, and research of county, city, state, regional, national codes and zoning. History and development of fire safety and building codes; history and development of zoning emphasizing architect's responsibility as related to specific project application.

4555 Cost Analysis (4) Methods and theories of estimating project cost and building cost with reference to current techniques. Research in new techniques of cost analysis.

4560 Specifications (4) Theory, analysis, and methods of specifications. Emphasis placed on development and research of specifications.

4565 Supervision (4) Theories, methods and site study of job inspection during construction phase and construction administration.

4701-02 Contract Documents/Working Drawings (8) The role of the engineer in the design/working drawings phase of the architectural design process. Emphasis placed on practice of architecture or engineering. Preparation and presentation of detailed working drawings, specifications and other documents for typical project. Prereq: Consent of instructor.

4710 Architectural Models (4) Introduction to use of models in architectural studies. Display models, materials, construction, special effects; structural models; laws of simili-
4711-12 Structural Design I, II (4-4, 4-4) Theory and experimen-
tation of design and structural analysis of structures. In-
cluding use of computer programs. Prereq: 3702 or equiva-
 lent.

4721-22 Advanced Architectural Structures (4, 4) Philosophy of structural design in relation to material purpose and form. Advanced mathemat-
ical and experimental analysis of structures, including use of computer programs. Prereq: 3702 or equivalent.

4726-27 Structural Innovation and Design Re-
search Lab (4-4, 4-4) Theory and experimen-
tation of building design utilizing innovative structural configuration and techniques. Basic structural design and form properties, and economic factors such as costs, materials and size.

4731-32 Earthquake Resistant Structure I, II (4-
4, 4-4) Analysis and design of structures to resist earthquake effects. Seismic phenomena, vi-
britation of single degree structural systems. Resonance and dampaning. Introduction to dy-

4733 Structural Design for Protection Against
Earthquake Hazards (4) Probability, risk, human values, insurance. Survey of possible hazards: floods, fire, hurricanes and tornados, earth-
quakes, nuclear effects, internal and external explosions. Building code and engineers de-
sign of steel, masonry, concrete and wood structures to resist extreme effects. Protection construction for human and system needs. Fire protection, special phenomena, life safety analysis, high-rise building fires.

4734 Advanced Design of Steel Buildings (4)
Construction and maintenance of steel build-
ings. Structural steel: joint design, composite construction. Fireproofing; building costs. Prereq: 3702 or equivalent.

4735 Advanced Design of Concrete Buildings (4)
Precast and on-site concrete construction and main-
tenance, foundations, floor and wall sys-
tems. Domes and shell roofs. Prereq: 3702 or equivalent.

4736-37 Planning and Design of Tall Buildings (4-
4, 4) Architectural, economic, and urban design considerations in design of tall buildings. Envi-
ronmental and service systems. Wind, fire and earthquake conditions. Structural and construc-

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

4741 System Theory, History and Methodology (4) Investigation of general system theory and system research methodology. Overview of system theory on the operational historic basis.

4742 Types of Systems (4) Comprehensive examination of systems types, concepts and applications. How systems assemble, components, panels, boxes and self-help systems. Exploration of all building types, hous-
ing, schools, hospitals, shops, factories, hos-
itals, etc., and their cultural ramifications. Pre-
req: 4741.

4743 System Techniques, Materials and Proc-
esses (4) Survey of new materials and their properties, innovations, and concepts. New uses of natural materials. Exploration of new construction methods, equipment and tech-
nical processes. Prereq: 4742.

4751 Structural and Architectural Innovations (4) Exploration of new concepts, advances and inno-

vative approaches to design, architecture and structural systems as they affect design draw-
ings, detailing, contract documents, and specifi-
cations. Study of component assembly, panel and box systems; wood, steel, concrete and plastic systems. Use of computers, structurally and architecturally. Prereq: 4743.

4752 Mechanical Innovations (4) New technologi-
cal components and processes for heating, venti-

lating, air conditioning, plumbing and electrical systems. Concepts of mechanical components at factory, and mechanical connections at the site, their application and use. Coreq: 4751.

4753 Construction and Manufacturing Innova-
tions (4) Comprehensive analysis of new tech-
nologies and innovations in manufacturing and construction with emphasis on production, trans-
portation, erection, distribution, precasting equipment, unions, codes, costs, regulatory agencies, building codes, shop drawings, factory assembly lines and site construction methods. Understanding of project planning, construction management, computers, CPM, fast-
tracking, prefabrication, and modularization. Prereq: 4751 and 4752.

4761-62 Systems Design Laboratory I, II (8, 8) A vertical multi-disciplinary design and research system laboratory and studio, integrating simultane-
ously undergraduates, graduates, profes-
sionals, intra-professionals, and extra-pro-
essionals. Total systems ("software" and "hardware") approach to individual and group problems. 4761: Defining, researching, probing and analyzing the problem and the system process. Application of new ideas, approaches and concepts to design and systems. 4762: Experimenting with new prototype forms, archi-
tecturally and with design systems, three dimen-
sionally and in twos, using new materials and techniques. Coordination of the total sys-
tems process.

4785 Thesis/Systems Laboratory (16) Indepen-
dent projects on a specified subject, for which a significant contribution to the art of design. Pre-
jects may include a preliminary design and a final presentation. Prereq: 3712 and 4761.

4771-72-73 Advanced Mechanical and Electrical
Systems (4, 4, 4) In-depth study of analysis and design of heating, ventilating, air-conditioning systems, lighting systems, and electrical distri-
bution in buildings. Prereq: 4785.

4775 Energy Conservation in Buildings (4) Com-
prehensive examination of energy conservation in buildings. Engineering and economics of ener-

4780 Fire Protection in Structures (4) Fire pro-
tection aspects of buildings and their occupants. Characteristics of fires; fire codes; building evacuations; fire detection and control systems; emergency power and lighting; fire re-
sistant materials and construction.

4785 Sound, Noise and Vibration Control in
Buildings (4) Determination and control of sound and vibration control techniques. Specific methods, procedures, and materials most effective in solving acoustical problems. Prereq: Engr & Speech Path. 4750 or Mechanical Engr. 4220.

4850 Elementary Structural Matrix Methods (4) Introduction to the generalized matrix methods of solving systems of simultaneous equations and vectors; development of member stiffness and flexibility matrices; assembly of struc-
tural matrices; stress and strain calculations. Consent of instructor. (Same as Civil Engineer-
ing 4850 and Engineering Science and Me-
chanics 4850.)

4900 Advanced Urban Environment (4) Interdis-
ciplinary course in urban problems. Prereq: Con-
sent of one of the instructors. (Same as Human Services 4880, Psychological Science 4900, Psychol-
ogy 4900 and Real Estate 4900.)

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

4920 Advanced Architectural Photography (4) Ap-
plication of special photographic techniques with emphasis on color printing and processing. Pre-
req: Consent of instructor.

4940 Proxemics (4) Seminar for graduate stu-
dents & upper-division students. Introduction to proxemic research. Definition of proxemic vari-
ables. Proxetic notation exercises. Analysis of etic data and the identification of emic cate-
gories. Observer bias and methods of bias re-
duction. Members of seminar required to design, conduct, and prepare proxemic research. Prereq: 2000 or consent of instructor.

4950 Environmental as Code (4) Advanced lecture of graduate students and upper-division stu-
dents. Advanced course of theoretical issues involved in considering environment as a medium of human communication. Codes and nature. Codes and social behavior. Relationships between coding behavior and the organization of the central nervous system. Cod-
ing and social behavior. Environment as a generic model of man-environment rela-
tions. Hierarchical aspects of environmental communications. Prereq: 2000 or consent of instructor.

4990 Senior Thesis (4) Exploration of topic and selection of thesis committee for 4995. Report which must include objective to be pursued, prin-
cipal hypotheses and assumptions, research methods, and proposed schedule. Satisfactory completion requires approval by thesis commit-

4995 Senior Thesis (8-12) Independent problem under direction of thesis committee. Aim of thesis is to demonstrate competence in dealing with concepts and theories in the subject area, ability to develop program at scale of major project, and proficiency at solving and docu-
menting research process and resolution. Prereq: 4990.

ACCELERATED CORE COURSES

4200 Accelerated Visual Studies (4) Identification and application of theories and methodologies of graphics analysis and communication principles, i.e., principles of visual coding and ordering, applicable to behavioral analysis. Descriptive and behavioral properties of elements of visual envi-
ronment. Selected exercises shall demonstrate manipulation of both static and dynamic proper-
ties to produce varied sensory responses and/or expressives. Preparation will lead to accelerated core program; coreq: 4022.

4201 Accelerated Basic Design and Analysis I (4) Investigation of elements and behavior of complex physical systems. Theories and meth-
odologies of optimization applicable to design decision making and problem solving are investi-
gated. Students shall demonstrate control and experimental design exercises. Prereq: 4020.

4202 Accelerated Analytical Studies I (4) General systems theory and scientific methods of analy-
sis applicable to control, design, and develop-

esses and design methodologies. Contextually, study traces emergence of contemporary archi-
tectural and engineering concepts. Emphasis on design theory, building technology, and processes of
developmental change. Prereq: Admission to the accelerated program; coreq: 4020.

4023 Accelerated Basic Design and Analysis II (4) Investigation of human response to varied configurations of built environments. Knowledge of response to human behavior and activity patterns applied through design process to create new environmental forms subjected to performance evaluation measured to anticipated response. Experimental design exercises will include varied problem types and scales. Exercises will incorporate scientific research methods and design methodologies. Prereq: 4020 and 4022; coreq: 4024.

4024 Accelerated Analytical Studies II (4) Basic research methods and environmental problem-solving techniques. Presentation of information and skills necessary for collecting, ordering, manipulating and displaying quantities of diverse data for research and evaluation purposes. Objective is to be qualified with fundamental concepts and techniques to utilize potential of electronic data processing technologies as a research tool. In addition to the regular lecture series of 2014, students are required independently to research aspects of study area for presentation to an accelerated seminar supplement. Prereq: 4022; coreq: 4023.

4027 Accelerated Man-Environment Systems (4) Study of causal, descriptive, behavioral and predictive properties of human and environmental systems and their transactions. Selected examination of cultural response variations to eco/social/physical change illustrate interdependence of human systems, activity systems, and physical systems. In addition to the regular lecture series of 2000, students are required to independently research aspects of this study area for presentation to an accelerated seminar supplement. Prereq: Admission to the accelerated core program.

4029 Accelerated Professional Practice (4) Examination of legal responsibilities of architect in servicing contractual agreements; contract documents, contract administration, codes and zoning, liability and insurance. Principles of economics and management; project production and management, cost analysis, budgeting, programming and construction management. Prereq: Admission to accelerated core program.

4031 Accelerated Historical Studies I (4) Introduction to evolution of architectural periods with selected illustrations from local examples. Advanced examination of relationship of historical and cultural developments to the built environment from antiquity through Byzantine period with applications to present-day design issues. Independent student projects on topics related to course materials. Prereq: Admission to accelerated core program.

4032 Accelerated Historical Studies II (4) Advanced examination of relationship of historical and cultural developments to the built environment from Romanesque period through neoclassicism with applications to present-day design issues. Study of historical research methods and analysis. Independent student projects on topics related to course material. Prereq: 4031.

4033 Accelerated Historical Studies III (4) Advanced examination of historical and cultural events of Industrial Revolution which gave rise to modern movement in architecture and design with applications to present-day design issues. Changing concepts of ethics, aesthetics, and architectural theory. Independent student projects on topics related to course material. Prereq: 4031 and 4032.
College of Business Administration

C. Warren Neel, Dean
John R. Moore, Associate Dean
Francis A. Chamblin, Assistant Dean
for Graduate Programs
Liston M. Fox, Assistant Dean

The College of Business Administration seeks to prepare men and women for positions as executives and specialists in business. Seeing the business firm as operating in a dynamic social, political, and economic environment, the college has four functions with respect to its purpose: (a) to offer its students the firm base of liberal education consistent with that possessed by all educated people; (b) to present to its students business-oriented instruction in professional fields so that they may understand the business process as a whole and the function of specific areas of business; (c) to associate closely with other colleges of the University in order to enrich the understanding of its students by offering an opportunity to learn from psychology, sociology, and other areas related to the behavior of people; (d) to develop in its students the ability to see their four years in the college as the initial step to a lifetime commitment to personal growth and intellectual maturity through continuing education.

The college centers its teaching, subject matter, and research activity around two themes: the manager as a planner, decision maker, implementer and controller of operations in a business firm; and the manager as an analyst of and an adapter to the larger social, economic, and political environment in which the firm exists.

The college has one goal: to have each student leave school with a reasonably articulate and coherent, though flexible and ever-developing, personal philosophy of business; an understanding of the scientific, ever-changing technological world; and a firm awareness of the social responsibility as a future executive and enlightened wielder of power.

The college has been a member of the American Assembly of Collegiate Schools of Business since 1941.

Transfer Admission

All students who have attempted 36 or more quarter hours of college-level work must have a grade point average of at least 2.00 to be eligible to transfer into the College of Business Administration. This requirement applies both to students transferring from other institutions (including those of The University of Tennessee System) and to those transferring from other colleges and schools of The University of Tennessee, Knoxville.

The college stands ready to assist any student seeking a business education, regardless of credit hours attempted or earned, and regardless of the grade point average. All such students should be referred to the Office of the Dean for counseling and discussion.

Student Advising Center

The College of Business Administration maintains a Student Advising Center. The center is staffed with full-time academic advisers to assist the freshman and sophomore students on an individual basis with their programs. Junior and senior students are assigned to advisers from the faculty of the student's selected major. The objective of working with students individually is to assist them in their own particular needs for academic information and to prepare them to answer their own questions and concerns.

Center for Business and Economic Research

The staff of the Center for Business and Economic Research engages in studies of the business and economic environment in Tennessee, the Southeast, and the nation. The center serves the business community, state government, individuals, and the University through dissemination of information and aids the faculty in preparing research proposals. Staff members conduct research in regional economics, public finance, demography and related socio-economic problems. The center publishes results of its research and that of others, in monograph form, so that significant developments in the various business disciplines can achieve widespread exposure. In addition, the center staff does contract research on business and economic problems for governmental organizations and private industry. As periodicals, the center publishes the Tennessee Statistical Abstract and the Survey of Business.

The center is a member of the Southeastern Economic Analysis Conference and the Association for University Business and Economic Research.

Tennessee Executive Development Program

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

The TEDP limits enrollment to 36 participants who live on campus for a total of four weeks spread over a three-month period. The fall Executive Seminar brings participants and spouses of all TEDP classes back to campus for sessions on relevant topics and current key issues. The Executive Seminar offers a continuing opportunity for personal growth and
professional development. This arrangement provides executives with extensive opportunities to exchange ideas and operational concepts with contemporaries in other business areas and with TEPD faculty as well. The faculty for the TEPD consists of senior professors who teach business-related subjects in the University's graduate programs and nationally-recognized professors of other institutions. Each participating faculty member has deep experience in either consultation with or actual operations in business and industry. The TEPD faculty is augmented by outstanding practitioners in their fields of business and industry.

Cooperative Program in Business

The College of Business Administration offers qualified students, who have completed at least one year of work at the University and whose grades conform to the standards set by the college, the opportunity to participate in the Cooperative Program in Business which, under the direction of a coordinator, combines classroom study with practical experience. Effort is made to place students in firms which offer maximum educational and financial advantages. Students alternate quarterly between work in business or industry and study at the University.

The Cooperative Program gives the student an opportunity for practical experience, develops a sense of responsibility and cooperation, helps in selecting a vocation, creates greater interest and incentive in studies, enables earning part of expenses, and may lead to permanent employment after graduation. The student may earn a maximum of nine hours elective credit for field work but must do a satisfactory job as determined by the employer and coordinator, including reports covering job experiences.

Preparation for Teaching

Students desiring to teach business or distributive subjects in the secondary schools of Tennessee may follow majors in accounting, office administration, marketing and also meet the requirements for certification by the State Department of Education. Students should consult an adviser in business or distributive education regarding the proper courses.

Master's and doctoral degree programs leading to teaching in junior and senior colleges or universities are available.

Course Load

The normal course load for a quarter is 15-17 hours. The maximum number of hours which may be taken by a freshman is 15. Other than jobs which offer more than 15. In unusual circumstances permission to take a course load in excess of these maximums may be granted by the assistant dean for Undergraduate Programs in Business Administration.

Requirements for All Curricula

A student must complete the curriculum outlined by the major department in order to receive a degree. Where no course number is specified or where a choice is allowed, the student will fulfill the requirement by selecting from specified courses. Where electives are provided, the courses taken must meet the approval of the adviser. Nondepartmental electives are considered as courses outside the student's major department. No more than 42 hours are permitted in any one subject area. A maximum of 30 credit hours of unconventionally graded (S/NC, P/F, P, etc.) courses may be applied to the total credit hours required for a degree of Bachelor of Science in Business Administration. Such credit hours may be used to meet only the requirements identified in the curriculum as "nonbusiness electives," "nondepartmental electives," "business and/or nonbusiness electives," and "business electives."

A Management Science Option is available for students with facility and interests in mathematical applications to business. See page 87.

NOTE: Students are advised to consult the University's degree requirements as stated in the front section of this catalog as well as the requirements for the college or department.

BUSINESS CORE REQUIREMENTS

The following core courses are required in all business curricula:
- Accounting 2110-20-30 (2110-20, 3210 for Accounting, Management, Management MSO, Logistics MSO, and Marketing MSO);
- Business Administration 4430; Business Law 4110 and 4120; Economics 2110-20-30;
- Finance 3210-30, 3510; Management 3010, 3110 (3111, for Management and Management Science Option); Marketing 3110-20; Office Administration 2250 or Computer Science 1410 (3150 for Management Science Option) and Statistics 2100 and three hours upper-division statistics elective as designated by the curriculum (3450-60 for Management Science Option).

ENGLISH REQUIREMENT

The English requirement can be fulfilled by both English 1010-20 and either English 1031, 1032, or 1033, as well as hours selected from English 2510-20-30, 2540, 2560-70-80, 2660-70-80. Speech 2311, unless specifically required by a curriculum, may be used to satisfy four of the electives. English hours beyond 1000 level may be taken in any order. Students making a B average in freshman English are permitted to substitute for the 2000-level courses listed above any upper-division courses which the Department of English will allow them to take.

NATURAL SCIENCE REQUIREMENT

The natural science requirement can be fulfilled by an eight hour sequence (any eight-hour sequence plus any additional four hours of natural science for the business education curriculum) in any of the following fields: astronomy, biology, botany, chemistry, geology, or physics.

SOCIAL SCIENCE REQUIREMENT

The social science requirement can be fulfilled by taking courses in the following fields: Anthropology 2510-20-30;
- Geography 1610-20, 2110-20-30-31; History 1510-20 (1518-28), 1610-20, 1950-60, 2510-20 (2518-28); Honors 1138; Human Services 2690; Philosophy 1510-20, 2310, 2510-20; Political Science 2020, 2510-20 (2518-28); Psychology 2500 (2518), 2530-40; Religious Studies 2610 (2611), 2620; and Sociology 1510-20. Students who have not completed a year of American history in high school must select American History [History 2510-20 (or 2518-28) and 2511 or 2521] as part of the 16 hours of social sciences.

COMPUTER SCIENCE REQUIREMENT

A computer programming course satisfies requirement; Computer Science 1410 or Office Administration 2750 is recommended.

Accounting

The curriculum provides preparation for professional accounting careers in public accounting, industry, and government. Graduates are eligible for the CPA examination in Tennessee.

Transfer Students: A minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at The University of Tennessee, Knoxville. These must include a minimum of 15 hours of accounting courses numbered 3000 or above and must include Accounting 4110, 4140, 4430, and 4630.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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<tr>
<td>Freshman</td>
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<tr>
<td>English 1010-20</td>
<td>3</td>
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<tr>
<td>or 1033</td>
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<tr>
<td>Mathematics 1540-50-60 or 1840-50-60</td>
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<tr>
<td>Accounting 2110-20-30</td>
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<tr>
<td>Management 3010, 3110 (3111, for Management and Management Science Option)</td>
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<td>Marketing 3110-20</td>
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<tr>
<td>Office Administration 2250 or Computer Science 1410 (3150 for Management Science Option)</td>
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<tr>
<td>Statistics 2100</td>
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<td>Social science elective</td>
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<td>Nonbusiness elective</td>
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Sophomore

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<td>Speech 2311</td>
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<td>Accounting 2110-20</td>
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<tr>
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<td>Computer science elective</td>
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<tr>
<td>Management Science 2110-20</td>
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<td>Social science elective</td>
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<tr>
<td>Computer Science 3410, 3910</td>
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Junior

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<tr>
<td>Accounting 3210-20-30</td>
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<td>Accounting 3430</td>
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<td>Finance 3510</td>
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<td>Statistics 3220</td>
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<tr>
<td>Statistics 4415</td>
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Business Education

This major is offered in cooperation with the Department of Vocational-Technical Education in the College of Education. The program meets requirements for certification in business subjects as approved by the State Department of Education. At least a C average must be made in each endorsement area in business for which a student is to be recommended.

Freshman

<table>
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<tr>
<th>Course</th>
<th>Hours Credit</th>
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<tr>
<td>English 1010-20; 1031 or 1032</td>
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<td>Business Law 4110-20</td>
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<td>Business and/or nonbusiness electives</td>
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<tr>
<td>Finance 3130</td>
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Sophomore

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<tr>
<td>Philosophy elective</td>
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<td>Computer science elective</td>
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<td>Psychology 2500</td>
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<td>Teaching field</td>
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<tr>
<td>School Health 3510; Public Health 3510, 3520</td>
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<td>Nutrition 1230</td>
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<td>Statistics 2100</td>
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</table>
| Junior
| Philosophy, anthropology, or upper-division history elective | 3 |
| Management 3010, 3110                     | 3            |
| Marketing 3110-20                         | 3            |
| Finance 3120-30                           | 3            |
| Finance 3510                              | 3            |
| Business Education 4130, 4010             | 2            |
| Office Administration 3210                | 3            |
| Teaching field                            | 3            |
| Educational Psychology 4150               | 3            |
| Education C&I 3010 and 3020               | 3            |
| Senior
| Statistics upper-division elective        | 3            |
| Business Law 4110-20                      | 3            |
| Business Administration 4430             | 3            |
| Education C&I 4170-20 and                | 3            |
| Business Education 4610                  | 3            |
| Office Administration 4310, 4320           | 3            |
| Business Education 4120                  | 2            |
| Office Administration 4430                | 3            |
| Economics elective                        | 3            |
| Health or physical education elective     | 4            |
| TOTAL: 187 hours                         |              |

Economics

The Department of Economics offers specialized courses for those who desire to serve as economic analysts and specialists in business, education, government, and various international agencies. The curriculum requirements for an economics major in the College of Business Administration are listed below with an additional explanation given on page 90. Freshman students may also elect to major in economics in the secondary schools through the College of Education. See page 107 for further details.

Transfer Students: A minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at The University of Tennessee, Knoxville. These must include a minimum of 15 hours of economics courses.

Freshman

<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
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<tr>
<td>Mathematics 1540-50-60 or 1840-50-60</td>
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<tr>
<td>Economics 4110</td>
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Sophomore

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<td>Computer science elective</td>
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<td>Psychology 2500</td>
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<td>Teaching field</td>
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<td>School Health 3510; Public Health 3510, 3520</td>
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<tr>
<td>Statistics 2100</td>
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</tbody>
</table>
| Junior
| Philosophy, anthropology, or upper-division history elective | 3 |
| Management 3010, 3110                     | 3            |
| Marketing 3110-20                         | 3            |
| Finance 3120-30                           | 3            |
| Finance 3510                              | 3            |
| Business Education 4130, 4010             | 2            |
| Office Administration 3210                | 3            |
| Teaching field                            | 3            |
| Educational Psychology 4150               | 3            |
| Education C&I 3010 and 3020               | 3            |
| Senior
| Statistics upper-division elective        | 3            |
| Business Law 4110-20                      | 3            |
| Business Administration 4430             | 3            |
| Education C&I 4170-20 and                | 3            |
| Business Education 4610                  | 3            |
| Office Administration 4310, 4320           | 3            |
| Business Education 4120                  | 2            |
| Office Administration 4430                | 3            |
| Economics elective                        | 3            |
| Health or physical education elective     | 4            |
| TOTAL: 187 hours                         |              |

Finance

Curricula in the finance department include those in finance, banking, insurance, and real estate and urban development. Areas of concentration in the finance curriculum include business finance and financial management, investments and security analysis, public finance and fiscal policy, and monetary theory and policy.

Transfer Students: A minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at The University of Tennessee, Knoxville. These must include a minimum of 12 hours of finance courses.

Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
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</thead>
<tbody>
<tr>
<td>English 1010-20; 1031 or 1032</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics 1540-50-60 or 1840-50-60</td>
<td>4</td>
</tr>
<tr>
<td>Natural science electives</td>
<td>4</td>
</tr>
<tr>
<td>Social science electives</td>
<td>4</td>
</tr>
<tr>
<td>Economics 2110</td>
<td>3</td>
</tr>
</tbody>
</table>

Banking

Students planning careers in management of commercial banks and branches, or as trust officers, investment or loan officers, or in savings or industrial banks, the Federal Reserve System, International monetary institutions, or state and federal bank regulatory agencies may major in banking.

Transfer Students: A minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at The University of Tennessee, Knoxville. These must include a minimum of 12 hours of finance courses.

Notes:
1See Requirements for All Curricula.
2It is strongly recommended that accounting majors select one of their English electives from English 3640 or 4140.
3May be accounting electives or other electives specified by accounting department advisor.
Senior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Law 4110-20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Business Administration 4430</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Finance, insurance, or real estate electives</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Accounting electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marketing or transportation elective</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Business electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL: 187 hours</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*See Requirements for All Curricula.

Insurance

The insurance major is for students planning careers in business risk management, insurance company and bureau administration, actuarial work, pension administration, life underwriting, estate planning, property-casualty agency management, insurance consulting, loss adjustment, and state regulation of insurance. Graduates are eligible to take the national examinations for the C.L.U. or C.P.C.U. designation.

Transfer Students: A minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at The University of Tennessee, Knoxville. These must include a minimum of 12 hours of insurance courses.

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>English 1010-20; 1031 or 1032 or 1033</td>
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<tr>
<td>Mathematics 1540-50-60 or 1840-50-60</td>
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</tr>
<tr>
<td>Natural science electives</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economics 2110</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounting 2110-20-30</td>
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<td>3</td>
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</tr>
<tr>
<td>Economics 2120-30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer science elective</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English elective</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social science elective</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonbusiness electives</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Junior</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Law 4110-20-30</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Business Administration 4430</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Finance, insurance, or real estate electives</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Accounting electives</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marketing or transportation elective</td>
<td>3</td>
<td>3</td>
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</tr>
<tr>
<td>Business electives</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL: 187 hours</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*See Requirements for All Curricula.

Logistics†

Business logistics concentration is recommended for students who desire to prepare for employment in physical distribution management or planning with industrial or marketing organizations. The overall program also prepares students for the examination waiver program of the American Society of Traffic and Transportation. A number of scholarships for this curriculum are available.

Transfer Students: A minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at The University of Tennessee, Knoxville. These must include a minimum of 21 hours of transportation courses.

Hours Credit

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
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</tr>
<tr>
<td>English 1010-20; 1031 or 1032 or 1033</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics 1540-50-60 or 1840-50-60</td>
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<tr>
<td>Natural science electives</td>
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<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Social science electives</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economics 2110</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounting 2110-20-30</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2120-30</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Computer science elective</td>
<td></td>
<td></td>
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<tr>
<td>English elective</td>
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<tr>
<td>Social science elective</td>
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<td>Nonbusiness electives</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Junior</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Business Law 4110-20-30</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Business Administration 4430</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Finance, insurance, or real estate electives</td>
<td>3</td>
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<tr>
<td>Accounting electives</td>
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<tr>
<td>Marketing or transportation elective</td>
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</tr>
<tr>
<td>Business electives</td>
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<td></td>
</tr>
<tr>
<td>TOTAL: 187 hours</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*See Requirements for All Curricula.

†To be taken when the topic is insurance

Management

This major is designed for students interested in management. All students complete a set of courses designed to provide a basic understanding of management of business organizations and also complete one of the following concentrations:

Operations Management—Designed for students who wish to prepare for careers in operations in manufacturing and service industries, including the specific fields of materials management, scheduling and control, work measurement, quality assurance, and supervision.

Personnel Management—Designed for students who wish to prepare for careers in personnel management, including the specialized fields of employment, wage and salary administration, job evaluation,
training and human resources management.
General Management—Designed for students who desire careers in management, but who do not wish to specialize in operations or personnel. This concentration allows flexibility so that students tailor their programs of study to fit their career goals by selecting from a set of both departmental and nondepartmental courses.

**Marketing**

This major is designed to prepare students for careers with companies engaged in the marketing of consumer and industrial goods and their distribution by manufacturers, wholesalers, and retailers. The curriculum trains students for positions in sales, advertising, promotion, research, and marketing management. The integrated sequence of courses enables students to obtain broad training in the analysis of marketing decision problems.

**Transfer Students: A minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at The University of Tennessee, Knoxville. These must include the following required marketing courses: 3210, 4210, 4510, 4650, 4710.**

<table>
<thead>
<tr>
<th>Fresman</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1010-20; 1031 or 1032 or 1033</td>
<td>3 3 3</td>
</tr>
<tr>
<td>*Economics 1</td>
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<tr>
<td>^Math 1450-50-60 or 1840-50-60</td>
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</tr>
<tr>
<td>*Mathematics electives</td>
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<tr>
<td>Economics 2110</td>
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</table>

**Sophomore**

<table>
<thead>
<tr>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>English elective</td>
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<tr>
<td>*Speech 2311</td>
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<tr>
<td>Accounting 2110-20</td>
</tr>
<tr>
<td>Economics 2120-30</td>
</tr>
<tr>
<td>Computer science elective</td>
</tr>
<tr>
<td>*Statistics 2100</td>
</tr>
<tr>
<td>*Social science elective</td>
</tr>
<tr>
<td>OPERATIONAL OR PERSONNEL CONCENTRATIONS</td>
</tr>
<tr>
<td>Management Science 2110-20</td>
</tr>
<tr>
<td>Nonbusiness electives</td>
</tr>
</tbody>
</table>

**GENERAL CONCENTRATION**

| Business and/or nonbusiness electives | 3 6 7 |

**Junior**

<table>
<thead>
<tr>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Management 3100, 3210</td>
</tr>
<tr>
<td>Finance 3120-30</td>
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<tr>
<td>Finance 3510</td>
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<tr>
<td>Marketing 3110-20</td>
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<tr>
<td>Accounting 3220-20</td>
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<tr>
<td>Economics 3420</td>
</tr>
<tr>
<td>Nonbusiness electives</td>
</tr>
</tbody>
</table>

**OPERATIONS CONCENTRATION**

| Industrial engineering 3600 | 3 |
| Statistics 3310 | 3 |
| Management 3111 | 3 |

**PERSONNEL CONCENTRATION**

| Industrial engineering 3600 | 3 |
| Statistics 3110 | 3 |
| Management 3111 | 3 |

**GENERAL CONCENTRATION**

| Management 3111 | 3 |
| Statistics upper-division elective | 3 3 3 |
| Concentration elective | 3 3 3 |

**Senior**

| Business Law 4110-20 | 3 3 3 |
| Business Administration 4430 | 3 3 3 |
| Management 4210, 4320, 4460 | 3 3 3 |
| Business and/or nonbusiness electives | 7 4 3 |

**OPERATIONS CONCENTRATION**

| Management 4470, 4410, 4420 | 3 3 3 |
| Concentration electives | 3 3 3 |
| PERSONNEL CONCENTRATION |
| Management 4470, 4520, 4530 | 3 3 3 |
| Concentration electives | 3 3 3 |

**GENERAL CONCENTRATION**

| Concentration electives | 3 6 6 |

**Office Administration**

Students entering the field of office administration may choose a specialized secretarial program or prepare for supervisory, administrative or managerial positions in the office. Students following the office administration major may meet teacher certification requirements by taking the appropriate education courses in consultation with the faculty adviser.

**Transfer Students: A major in office administration-general or a major in office administration-secretarial, requires a minimum of 30 quarter hours of required upper-division College of Business Administration courses which must be completed in residence at The University of Tennessee, Knoxville. For office administration-secretarial, these must include Office Administration 4410, 4420 and 4430. For office administration general, these must include a minimum of nine hours of office administration courses, including 4430.**

<table>
<thead>
<tr>
<th>Fresman</th>
<th>Hours Credit</th>
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</thead>
<tbody>
<tr>
<td>English 1010-20; 1031 or 1032 or 1033</td>
<td>3 3 3</td>
</tr>
<tr>
<td>*Mathematics electives</td>
<td>4 4 4</td>
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<tr>
<td>*Natural science electives</td>
<td>4 4 4</td>
</tr>
<tr>
<td>*Nonbusiness electives</td>
<td>4 4 4</td>
</tr>
</tbody>
</table>

**Sophomore**

| Accounting 2110-20-30 | 3 3 3 |
| Computer science elective | 3 3 3 |
| Economics 2110-20-30 | 3 3 3 |
| Social science elective | 3 3 3 |
| *Speech 2311 | 3 3 3 |
| Statistics 2100 | 3 3 3 |
| Economics 3410 or 3420 or 4250 | 6 6 6 |
| *Nonbusiness electives | 3 3 3 |

**Junior**

| Accounting 3110 or 3220 or 4340 | 3 |
| Economics 3110 | 3 |
| Economics 3210 or 3220 or 3340 or 3410 | 3 3 3 |
| Finance 3120-30 | 3 3 3 |
| Finance 3310 | 3 3 3 |
| Management 3110 | 3 3 3 |
| Marketing 3110-20 | 3 3 3 |
| Marketing 3210 | 3 3 3 |
| Marketing 4510 | 3 3 3 |
| Transportation 3110 | 3 3 3 |
| Nondepartmental electives | 6 6 6 |

**Senior**

| Business Administration 4430 | 3 3 3 |
| Business Law 4110-20 | 3 3 3 |
| Business electives (9 hours from Management 4140, 4150, 4230, 4310, 4440, 4520, 4630, 4815-25) | 3 3 3 |
| Transportation 4720-30, Business Administration 4610 | 3 3 3 |
| Marketing 4210 | 3 3 3 |
| Marketing 4650 | 3 3 3 |
| Marketing 4710 | 3 3 3 |
| Transportation 3115 | 3 3 3 |
| Business and/or nonbusiness electives | 6 6 6 |
| Nondepartmental electives | 6 6 6 |
| *Nonbusiness electives | 3 3 3 |

**OFFICE ADMINISTRATION-SECRETARIAL**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Management 3010, 3110</td>
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<tr>
<td>Marketing 3110-20</td>
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<tr>
<td>Finance 3120-30</td>
</tr>
<tr>
<td>Finance 3310</td>
</tr>
<tr>
<td>Statistics upper-division elective</td>
</tr>
<tr>
<td>Economics elective</td>
</tr>
<tr>
<td>Office Administration 2330, 4410-20</td>
</tr>
<tr>
<td>Office Administration 3210, 4310, 4520</td>
</tr>
</tbody>
</table>

**Senior**

| Business Law 4110-20 | 3 3 3 |
| Business Administration 4430 | 3 3 3 |
| Office Administration 4710 or 4540 | 3 3 3 |
| Office Administration 4430 | 3 3 3 |
| Nonbusiness electives | 6 6 6 |
| Business and/or nonbusiness electives | 6 6 6 |

**OFFICE ADMINISTRATION-GENERAL**

<table>
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<th>Hours Credit</th>
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<tbody>
<tr>
<td>Management 3010, 3110</td>
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<tr>
<td>Marketing 3110-20</td>
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<tr>
<td>Finance 3120-30</td>
</tr>
<tr>
<td>Finance 3310</td>
</tr>
<tr>
<td>Statistics upper-division elective</td>
</tr>
<tr>
<td>Economics elective</td>
</tr>
<tr>
<td>Accounting electives</td>
</tr>
<tr>
<td>Office Administration 3210, 4310, 4520</td>
</tr>
</tbody>
</table>

1See Requirements for All Curricula.
2Management Science 2110-20 is recommended to fulfill 6 hours of the sophomore elective.
3Concentration electives: Accounting 4630: Business Administration 4610; Computer Science 3410, 3910; Economics 4470: Industrial Engineering 4360; Insurance 3020, 4720: Journalism 3710; Management 3330, 4230, 4410, 4420, 4470, 4520, 4530, 4610, 4620, 4710. Students may, with the approval of their advisors, substitute other career-relevant courses for concentration electives.
4Half of the concentration electives in the general management concentration must be courses offered by the Department of Management.
TWO-YEAR SECRETARIAL PROGRAM

The two-year program in office administration is offered to high school graduates who want to prepare for secretarial work but who do not plan to complete four years of University training and earn a degree. All courses taken in this program have full University credit and may be applied toward a degree.

A certificate may be awarded to students who have completed the program with an overall average of at least 2.0, an average of 2.2 in office administration, and within the first 120 hours of credit.

Information regarding the recommended sequence of courses may be obtained from the office of the department head.

This "short course" is planned for six quarters of work and may be started at the beginning of any quarter.

Subject

<table>
<thead>
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<th>Hours</th>
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<tbody>
<tr>
<td>Office Administration 2120-30, 2180</td>
<td>7</td>
</tr>
<tr>
<td>Office Administration 2310-20, 4410-20</td>
<td>15</td>
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<td>English 1010-20, 1031 or 1032</td>
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<tr>
<td>1033</td>
<td>9</td>
</tr>
<tr>
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<tr>
<td>Business Administration 1110 (General Business)</td>
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</tr>
<tr>
<td>Office Administration 3210</td>
<td>3</td>
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<tr>
<td>Office Administration 4710 or Computer Science 4110</td>
<td>3</td>
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<tr>
<td>Office Administration 4710 or Computer Science 4750</td>
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</tr>
<tr>
<td>Business Letter Writing</td>
<td>3</td>
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<tr>
<td>Office Administration 4430</td>
<td>3</td>
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<tr>
<td>Accounting 2110-20</td>
<td>6</td>
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<tr>
<td>Economics 2110-20</td>
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<tr>
<td>Social science</td>
<td>6-6</td>
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<td>Psychology 2500</td>
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<td>Physical education</td>
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<tr>
<td>Electives</td>
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</tbody>
</table>

TOTAL: 90 hours

*Previous training in shorthand or typewriting may exempt a student from the beginning courses in these subjects. If no typewriting has been taken, a prerequisite of Office Administration 2110 is necessary.

Public Administration

This major is for students who wish to prepare for management positions in the public service. In general, it presents a combination of general education together with courses in governmental and business management. It is designed to give initial preparation for such governmental employment as organization and methods work, budgeting work, and personnel management.

Sophomore

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>English electives</td>
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<tr>
<td>Economics 2110-20, 2310-20 or 3110</td>
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<tr>
<td>Accounting 2110-20, 3110</td>
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</tr>
<tr>
<td>*Computer science elective</td>
<td>3</td>
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<tr>
<td>Statistics 2100</td>
<td>3</td>
</tr>
<tr>
<td>Business and/or nonbusiness electives</td>
<td>4</td>
</tr>
</tbody>
</table>

Junior

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economics 3410, 3340</td>
<td>3</td>
</tr>
<tr>
<td>Finance 3120-30</td>
<td>3</td>
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<tr>
<td>*Computer science elective</td>
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<tr>
<td>Political Science 2110-20</td>
<td>4</td>
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<tr>
<td>Political Science 1540-20</td>
<td>4</td>
</tr>
<tr>
<td>Business and/or nonbusiness electives</td>
<td>3</td>
</tr>
</tbody>
</table>

*See Requirements for All Curricula.

Real Estate and Urban Development

This major is designed for students who are interested in the many fields of business and government where real estate is of significance. Such fields include real estate brokerage, appraising, taxation, law, property management, real estate development, mortgage lending and mortgage banking, construction, government loan guarantees, and insurance.

Transfer Students: A minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at The University of Tennessee, Knoxville. These courses must include a minimum of 12 hours of real estate and urban development courses.

Sophomore

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English electives</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2110-20</td>
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<td>Mathematics 1540-50 or 1840-50-60</td>
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<tr>
<td>*Social science electives</td>
<td>4</td>
</tr>
<tr>
<td>Political Science 2510-20</td>
<td>4</td>
</tr>
<tr>
<td>Business and/or nonbusiness elective</td>
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</table>

Sophomore

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English electives</td>
<td>4</td>
</tr>
<tr>
<td>Economics 2110-20</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 2110-20, 2310-20 or 3110</td>
<td>3</td>
</tr>
<tr>
<td>Statistics 2100</td>
<td>3</td>
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<tr>
<td>*Computer science elective</td>
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</tr>
<tr>
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<tr>
<td>Nonbusiness electives</td>
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Junior

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>Finance 3120-30</td>
<td>3</td>
</tr>
<tr>
<td>Finance 3510</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 2110-20, 3110</td>
<td>3</td>
</tr>
<tr>
<td>Economics 3110-20</td>
<td>3</td>
</tr>
<tr>
<td>Finance 4110</td>
<td>3</td>
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<tr>
<td>Real Estate 3610, 3615, 3630</td>
<td>3</td>
</tr>
</tbody>
</table>

*See Requirements for All Curricula.

Statistics

A major in statistics is recommended for students interested in positions involving process control and quantitative research in business, industry, and government.

Freshman

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>English 1010-20, 1031 or 1032 or 1033</td>
<td>3</td>
</tr>
<tr>
<td>Economics 1840-50-60</td>
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</tr>
<tr>
<td>*Natural science electives</td>
<td>4</td>
</tr>
<tr>
<td>Economics 2110</td>
<td>3</td>
</tr>
<tr>
<td>*Social science electives</td>
<td>4</td>
</tr>
<tr>
<td>Mathematics 2840-50-60</td>
<td>4</td>
</tr>
</tbody>
</table>

Sophomore

<table>
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<tr>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Accounting 2110-20, 3110</td>
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</tr>
<tr>
<td>Economics 2120-30</td>
<td>3</td>
</tr>
<tr>
<td>Business and/or nonbusiness elective</td>
<td>3</td>
</tr>
<tr>
<td>*Computer science elective</td>
<td>3</td>
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<tr>
<td>Statistics 3450-60</td>
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<tr>
<td>Mathematics 2840-50-60</td>
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Junior

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Management 3010, 3110</td>
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<tr>
<td>Marketing 3120-20</td>
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<td>Business electives</td>
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<tr>
<td>Business and/or nonbusiness electives</td>
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</tbody>
</table>

*See Requirements for All Curricula.

Transportation

A major in transportation is recommended for students who desire to prepare for employment with carriers supplying transportation service, both passenger and freight, or regulatory bodies and planning agencies of federal, state, and local governments. The overall transportation program also prepares students for the examinations of the American Society of Traffic and Transportation. A number of scholarships for transportation majors are available.

Transfer Students: A minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at The University of Tennessee, Knoxville. These courses must include a minimum of 21 hours of transportation courses.
Management Science Option

The increasing use of electronic computers and modern management methods by industry and the business community has created a rapidly growing demand for persons capable of using mathematics, statistics, and computer methods for the use of quantitative techniques in solving management problems. In response to this growing demand, the College of Business Administration has established a Management Science Option which is available to qualified students who wish to prepare themselves for careers involving this type of work.

The Management Science Option is designed for students who have demonstrated a high level of ability in mathematics and who are interested in applying this ability toward solving management problems. The Management Science Option is available to students majoring in accounting, finance, general business, industrial management, marketing, personnel management, real estate and urban development, statistics, and transportation.

Accounting M.S.O.

Transfer students with 9 quarter hours of introductory accounting will receive 6 hours of credit in Accounting 2110-20 and 3 hours of lower-division accounting credit. These students must take as one of their technical electives an upper-division course approved by the accounting department adviser, and it must not be an accounting course.

Transfer Students: An option in Accounting M.S.O. requires a minimum of 30 quarter hours of required upper-division College of Business Administration courses which must be completed in residence at The University of Tennessee, Knoxville. These must include a minimum of 15 hours of accounting courses numbered 3300 or above and must include Accounting 4110, 4630, and either 4140 or 4430.

Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Speech 2311</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2100-20-30</td>
<td>3</td>
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<tr>
<td>Accounting 2110-20-30</td>
<td>3</td>
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<tr>
<td>Statistics 2100-20-30</td>
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<tr>
<td>Economics 2100-20-30</td>
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<td>Transportation 3110</td>
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<tr>
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<td>TOTAL: 187 hours</td>
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Senior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
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</thead>
<tbody>
<tr>
<td>Business Law 4110-20-30</td>
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<tr>
<td>Business Administration 4430</td>
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</tr>
<tr>
<td>Transportation upper-division electives</td>
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<tr>
<td>Business electives</td>
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<tr>
<td>Nondepartmental business electives</td>
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<tr>
<td>TOTAL: 193 hours</td>
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*See Requirements for All Curricula.

General Business M.S.O.

Transfer Students: An option in General Business M.S.O. requires a minimum of 30 quarter hours of required upper-division College of Business Administration courses which must be completed in residence at The University of Tennessee, Knoxville. These must include a minimum of 12 hours of accounting, economics, and finance courses.

Finance M.S.O.

Transfer Students: An option in Finance M.S.O. requires a minimum of 30 quarter hours of required upper-division College of Business Administration courses which must be completed in residence at The University of Tennessee, Knoxville. These must include a minimum of 12 hours of finance courses.

Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>English 1010-20; 1031 or 1032</td>
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</tr>
<tr>
<td>Mathematics 1540-50-60</td>
<td>4</td>
</tr>
<tr>
<td>Accounting 2100-20-30</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2110-20-30</td>
<td>3</td>
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<tr>
<td>Nonbusiness electives</td>
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<tr>
<td>TOTAL: 187 hours</td>
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*See Requirements for All Curricula.

Economics

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<tr>
<td>Mathematics 1540-50-60</td>
<td>4</td>
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<tr>
<td>Accounting 2110-20-30</td>
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<td>Economics 2110-20-30</td>
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<td>Nonbusiness electives</td>
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*See Requirements for All Curricula.

Business electives

<table>
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<tbody>
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<tr>
<td>Mathematics 1540-50-60</td>
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<tr>
<td>Accounting 2110-20-30</td>
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<td>Economics 2110-20-30</td>
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<td>Nonbusiness electives</td>
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</tbody>
</table>

*See Requirements for All Curricula.
Logistics M.S.O.

Transfer Students: A concentration in Logistics M.S.O. requires a minimum of 30 quarter hours of required upper-division College of Business Administration courses which must be completed in residence at The University of Tennessee, Knoxville. These must include a minimum of 21 hours of transportation courses.

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<td>Mathematics 1840-50-60</td>
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<td>Economics 2110</td>
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<tr>
<td>Natural science electives</td>
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<td>4</td>
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<tr>
<td>Social science electives</td>
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<tr>
<td>Nonbusiness electives</td>
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Sophomore

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<thead>
<tr>
<th>Hours Credit</th>
<th>I</th>
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</thead>
<tbody>
<tr>
<td>Speech 2311</td>
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<tr>
<td>Accounting 2110-20</td>
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<tr>
<td>Mathematics 2840-50-60</td>
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<tr>
<td>Economics 2120-30</td>
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<tr>
<td>Management 3110</td>
<td>4</td>
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<td>4</td>
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<tr>
<td>Social science electives</td>
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<tr>
<td>Nonbusiness electives</td>
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Junior

<table>
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<th>Hours Credit</th>
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<tbody>
<tr>
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<td>Statistics 3450-60, 3550</td>
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<td>Accounting 3210-20</td>
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<td>Management 3110, 3111, 3112</td>
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<tr>
<td>Finance 3120-30</td>
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<td>Finance 3510</td>
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<td>Economics 3490</td>
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<td>GENERAL MANAGEMENT CONCENTRATION</td>
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<tr>
<td>OPERATIONS OR PERSONNEL CONCENTRATIONS</td>
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<tr>
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Senior

<table>
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<th>Hours Credit</th>
<th>I</th>
<th>II</th>
<th>III</th>
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</thead>
<tbody>
<tr>
<td>Business Law 4110-20</td>
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<tr>
<td>Business Administration 4430</td>
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<tr>
<td>Management 4210, 4320, 4460</td>
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<tr>
<td>Management 4610-20</td>
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<td>Business and/or nonbusiness electives</td>
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<td>OPERATIONS CONCENTRATION Management 4410, 4420, 4470</td>
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<td>PERSONNEL CONCENTRATION Management 4740, 4740, 4530</td>
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<td>*Concentration electives</td>
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<tr>
<td>GENERAL MANAGEMENT CONCENTRATION</td>
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<td>*Concentration electives</td>
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<tr>
<td>TOTAL: 187 hours</td>
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</table>

Marketing M.S.O.

Transfer Students: An option in Marketing M.S.O. requires a minimum of 30 quarter hours of required upper-division College of Business Administration courses which must be completed in residence at The University of Tennessee, Knoxville. These must include the following required marketing courses: 3210, 4210, 4510, 4650, 4710.

<table>
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<th>Hours Credit</th>
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<th>II</th>
<th>III</th>
</tr>
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<tbody>
<tr>
<td>Freshman</td>
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<tr>
<td>English 1010-20; 1031 or 1032</td>
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<td>*English elective</td>
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</tr>
<tr>
<td>Mathematics 1840-50-60</td>
<td>4</td>
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<td>4</td>
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<tr>
<td>Natural science electives</td>
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</tr>
<tr>
<td>Social science electives</td>
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</tr>
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<td>Nonbusiness electives</td>
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Sophomore

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting 2110-20</td>
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<tr>
<td>Economics 2110-20-30</td>
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<td>Mathematics 2840-50-60</td>
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<td>Economics 2120-30</td>
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<td>Management 3110</td>
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<td>Statistics 3450-60</td>
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<tr>
<td>*Nonbusiness elective</td>
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Senior

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Administration 4430</td>
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<tr>
<td>Business Law 4110-20</td>
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<tr>
<td>Management 4610-20</td>
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<td>Business electives (9 hours from Management 4410, 4150, 4230, 4310, 4460, 4520, 4688, 419-20, 4720-30, 4720-30, Business Administration 4610)</td>
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<tr>
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<td>Marketing 4650</td>
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<tr>
<td>Transportation 3110</td>
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<tr>
<td>Business and/or nonbusiness electives</td>
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Real Estate and Urban Development M.S.O.

<table>
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<tbody>
<tr>
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<td>English 1010-20; 1031 or 1032</td>
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<tr>
<td>Math 1840-50-60</td>
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<tr>
<td>Mathematics 1840-50-60</td>
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</tr>
<tr>
<td>*Natural science elective</td>
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<td>4</td>
<td>4</td>
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<tr>
<td>Social science electives</td>
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<tr>
<td>*Nonbusiness elective</td>
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Sophomore

<table>
<thead>
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<th>III</th>
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<tbody>
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<td>Economics 3415, 3550</td>
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<tr>
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Junior

<table>
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<th>Hours Credit</th>
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<th>III</th>
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<tbody>
<tr>
<td>Finance 3120-30, 3510</td>
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<tr>
<td>Marketing 3110-20</td>
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<td>Management 3010, 3110</td>
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<td>Statistics 4415, 3550</td>
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Senior

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*See Requirements for All Curricula.

It is strongly recommended that marketing majors select as many of their electives as possible from the following:

*Psychology 3120, 3220, Sociology 3101, 3130, 3220, 3320, 3340, 3420, 4330, 4510, 4550, 4820.
Statistics M.S.O.

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*See Requirements for All Curricula.
*Includes senior-level transportation courses and/or upper-division business courses.

Graduate Studies

The College of Business Administration offers advanced programs in economics leading to the Master of Arts, the Master of Science, the Master of Arts in College Teaching, and the Doctor of Philosophy degrees. The Master of Business Administration degree program is offered in the fields of accounting, economics, finance, forest industries management, governmental financial administration, management, management science, marketing, real estate and urban development, statistics, and transportation and logistics. The Master of Accountancy is offered in accounting. The Doctor of Business Administration degree program is offered in the fields of accounting, finance, management, marketing, and transportation and logistics. Advanced programs in management science lead to the M.S. and the Ph.D. degrees. The M.S. degree in statistics is also available. The M.S. and the Ph.D. degrees are granted in industrial and organizational psychology jointly with the Department of Psychology. This college and the College of Law offer a coordinated dual program leading to the conferral of both the Doctor of Jurisprudence and the Master of Business Administration degrees. See the Graduate Catalog for detailed information.

Students applying for the MBA, M.Acc., and DBA programs are required to take the Graduate Management Admission Test (GMAT). Applicants for the M.A., M.A.C.T., M.S., and Ph.D. programs may take either the GMAT or the Graduate Record Examination (GRE). Applicants whose native language is other than English must submit results of the Test of English as a Foreign Language (TOEFL). Scheduled dates and locations for taking these examinations may be obtained from Educational Testing Service, P.O. Box 966, Princeton, New Jersey 08540, and from most colleges and universities.

An applicant must file an application with the Graduate School of the University and request that transcripts of all college-level work and results of the appropriate admission test be sent to the Graduate School. A decision on admission cannot be made until these documents are available. Most doctoral programs require letters of recommendation from three individuals. Applications, transcripts, and admission test scores should be submitted three months prior to desired entry date.

Transportation M.S.O.

Transfer Students: A concentration in Transportation M.S.O. requires a minimum of 30 quarter hours of required upper-division College of Business Administration courses which must be completed in residence at The University of Tennessee, Knoxville. These must include a minimum of 21 hours of transportation courses.

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Departments of Instruction

Accounting and Business Law


Associate Professors: H.C. Herring, III, Ph.D. Alabama, CPA; F.A. Jacob, Ph.D. Georgia, CPA; W.J. Morse, Ph.D. Michigan State, CPA; G.E. Nichols, Ph.D. Louisiana State, CPA; I.A. Person, S. Tennessee, CPA; W.L. Slagle, M.S. Tennessee, CPA; K.G. Stanga, Ph.D. Louisiana State, CPA; R.L. Townsend, Ph.D. Texas, CPA; F.E. Watkins, Jr., Ph.D. Louisiana State, CPA.

Assistant Professors: V.J. Gelinas, Jr., Ph.D. Massachusetts; M.C. Letsinger, M.S. Tennessee, CPA; J.H. Scheiner, Ph.D. Ohio State, CPA.

Accounting (009)

2110-20 Fundamentals of Accounting (3, 3) Introductory courses in financial accounting theory and practice with emphasis on preparation, reporting, and analysis of financial information. Prereq: to all other courses in accounting except for engineering majors. Courses must be passed in sequence. Prereq: For 2110, Math 1550 or equivalent.

2130 Survey of Managerial Cost Accounting (3) User-oriented survey of managerial cost accounting topics designed as a terminal course. Topics include product costing, cost behavior analysis for decision making, standard costing, and budgeting. Prereq: 2120.

3110-20-30 Intermediate Accounting (3, 3, 3) In-depth study of theory, principles, and procedures related to the valuation of assets, liabilities, and equities; measurement of periodic income; and preparation of financial statements. Prereq: 2120 for 3110; 3110 with grade of C or better for 3120; and 3120 with a grade of C or better for 3130.
3138 Honors: Intermediate Accounting (3)
Intermediate financial accounting theory designed for increased enrichment of student with superior ability and interest. Prereq: Same as for 3130 and consent of department head. This course substitutes for Accounting 3130 in student's program.

3210-20-30 Managerial Cost Accounting (3, 3, 3)
In-depth analysis of costing for products, projects, and management control. Special topics include performance measurement of decentralized operations, accounting aspects of quantitative techniques for decision analysis, governmental regulation of cost accounting standards, and other current issues. Prereq: 2120. Courses must be taken in sequence. Credit not given for both 3210 and 3210.

3238 Honors: Managerial Cost Accounting (3)
Designed for increased enrichment of student with superior ability and interest. Prereq: Same as for 3230 and consent of department head. This course substitutes for Accounting 3230 in student's program.


3510 Not-for-Profit Accounting (3) Theory and practice of budgeting, financial and managerial accounting and reporting, planning-programming, and auditing for not-for-profit entities. Prereq: 2210 or equivalent.

3630 Electronic Data Processing Concepts and Control (3) Elements and operation of computer in business environment; accounting systems are emphasized. Topics include input, storage, data manipulation, output, control, and security. Prereq: 2210, Computer Science 3410 or equivalent.

4110 Principles of Auditing (3) Role of auditing in society, professional auditing standards, auditor's legal responsibility, internal control, use of statistical sampling, audit evidence, and reporting. Prereq: 3130 with grade of C or better; Computer Science 3910. Prereq or coreq: Statistics 3410.

4118 Honors: Principles of Auditing (3) Introductory course in auditing designed for increased enrichment of student with superior ability and interest. Prereq: Same as for 4110 and consent of department head. This course substitutes for Accounting 4110 in student's program.

4120 Advanced Auditing (3) Case-oriented course including audit of specific asset, liability, revenue and expense accounts, with emphasis on recording, data processing, statistical sampling, and internal auditing. Prereq: 4110 with grade of C or better.

4140 Accounting for Business Combinations (3) Theory and practice of reporting for integrated business entities. Prereq: 3130 with grade of C or better.

4148 Honors: Accounting for Business Combinations (3) Designed for increased enrichment of student with superior ability and interest. Prereq: Same as for 4140 and consent of department head. This course substitutes for Accounting 4140 in student's program.

4150 Advanced Accounting (3) Analysis of issues and alternative strategies in advanced problem areas including objectives of financial reporting, authoritative accounting pronouncements, price-level and current-value accounting, partnerships, and selected other current topics. Prereq: 3130 with a grade of C or better.

4158 Honors: Advanced Accounting (3) Designed for increased enrichment of student with superior ability and interest. Prereq: Same as for 4150 and consent of department head. This course substitutes for Accounting 4150 in student's program.

4430 Advanced Federal Taxes (3) Fundamental problems of federal taxation with emphasis on alternatives available for reporting taxable income. Prereq: 3150 and 4340.

4438 Honors: Advanced Federal Taxes (3) Designed for increased enrichment of student with superior ability and interest. Prereq: Same as for 4430 and consent of department head. This course substitutes for Accounting 4430 in student's program.

4440 Taxation of Estates and Gifts (3) Topics include transfers at death, inter vivos transfers, life insurance, annuities and employee death benefits, marital and other deductions, legal elections, and estate and gift tax returns. Prereq: 4430.

4630 Analysis and Design of Information Systems (3) General systems concepts, flowcharting, planning of systems studies, determination of systems objectives, development and evaluation of systems alternatives, implementation, documentation and control. Prereq: Computer Science 3910.

4638 Honors: Analysis and Design of Information Systems (3) Designed for increased enrichment of student with superior ability and interest. Prereq: Same as for 4630 and consent of department head. This course substitutes for Accounting 4630 in the student's program.

4950 Individual Research in Accounting (3) Special projects undertaken by undergraduate majors in accounting under direction of faculty members of professional rank. Prereq: 3130 with grade of C or better.

4990 Accounting Theory (3) Theory and conceptual framework underlying measurement of income and financial position as related to the resolution of key reporting problems. Prereq: 3130 with grade of C or better.

GRADUATE
See page 89 for information on graduate programs.

5002 Non-Thesis Graduation Completion (3-15)

5050-60 Introduction to Accounting (3, 3)

5110 Seminar in Accounting Theory (3)

5120 Seminar in Advanced Auditing (3)

5130-40 Seminar in Current Accounting Topics (3, 3)

5150 Research in Accounting (3)

5160 Graduate Internship in Accounting (3)

5210-20 Seminar in Advanced Managerial Cost Accounting (3, 3)

5310 Auditing Concepts (3)

5330 Advanced Income Tax (3)

5420 Tax Research (3)

5430 Tax Planning (3)

5510 Not-for-Profit Accounting (3)

5630 Accounting Systems and EDP Concepts and Control (3)

5640 Seminar in Accounting Information Systems (3)

5810 Accounting for Control (3)

5820 Corporate Reporting Problems (3)

6000 Doctoral Dissertation and Research

6110-20-30 Doctoral Seminar in Accounting (3, 3, 3)

Business Law (216)

4110 Environmental Business Law (3) Principles of law comprising legal environment appropriate to common business transactions. Strongly integrated with basic political and economic concepts. Review of U.S. legal system and business-related law.

4120 Law of Business Organizations and Regulation (3) General principles of law, as these pertain to business partnerships and corporations, affect taxation, and exist with agencies regulating business. Prereq: 4110.

4130 Administrative Regulation of Business (3) Analyzes nature and extent business operations are controlled by administrative agencies operating at federal, state, and local levels. Includes nature of administrative agencies, jurisdiction, administrative procedures, and significant laws administered by such agencies. Prereq: 4120.

4330 Business Law (3) Fundamentals of business law designed for professional examination required for marketing, or certification in fields of public accounting, commercial law, commercial property and casualty underwriters, chartered life underwriters and certified professional secretaries.

GRADUATE
5050 Legal Environment of Business (3)

Economics (283)

Professors:
C.B. Garrison (Acting Head), Ph.D. Kentucky; R.L. Bovley, Ph.D. Texas; W.E. Cole, Ph.D. Texas; G.R. Feiwel, Ph.D. McGill (Canada); J.F. Holly (Emeritus), Ph.D. Clark; 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 (England); G.A. Spiva, Jr., Ph.D. Texas; F.B. Ward (Emeritus), Ph.D. Pennsylvania; R.H. Wolf, Ph.D. Vanderbilt.

Associate Professors:

Assistant Professors:
N.O. Alper, Ph.D. Pittsburgh; D.P. Clark, Ph.D. Michigan State; T.L. Majors, B.S. Tennessee; N.C. Modeste, Ph.D. Florida; M.J. Morlock, M.S. Washington State; F. Murtaugh, M.A. Tennessee; A.M. Schimmelm, Ph.D. Washington (Missouri).

1Alumni Distinguished Service Professor.

Visiting:

Requirements for a major in economics consist of: (1) Economics 2110, 2120, and 2130 or equivalent honors courses; and (2) a minimum of 33 additional hours in upper-division economics courses. Economics 3110 (or 3111 and 3112) and 3120 are required as a part of the upper-division work and should be taken as early in the upper-division program as possible.

2001 Current Economic Problems (3) Discussion of selected economic concepts and events. Topics include controversial problems of current or continuing interest will be considered. Emphasis will be on non-technical treatment. Designed for non-economics and non-College of Business Administration majors. May not be used for degree requirements in business administration, and may not be substituted for Economics 2110 or 2120 or 2130.


2118-28-38 Honors: Introductory Economics (3, 3, 3) Corresponds to 2110 but is more advanced in scope, with superior ability and interest. Entrance into 2118 requires a B average; selected third-quarter freshmen will be admitted on basis of high school record, American College Testing Program scores, and grade record during first two quarters. Grade of B in 2118 is necessary for entrance into 2120. An A or B in 2120 automatically gives credit for 2138 also, with same grade. Students making C or D in 2120 must take 2130 in order to receive nine hours credit.
3110 Intermediate Micro Theory (3) Allocation of resources and price determination; market demand, production, cost, and supply; distribution. Prereq: 2110, 2130.
3120 Intermediate Macro Theory (3) Aggregate demand, output, and level of employment; price level, inflation and deflation; economic growth. Prereq: 2110, 2120.
3230 Regional Economics (3) Overview of regional differences: theory of industrial, agricultural and residential location; the economic basis for land use patterns and central places; regional structure, growth and methods of analysis; national assistance for regional economic development. Prereq: 2120 and 2130.
3240 Economic History of the United States (3) Historical developments in agriculture, industry, communication, banking, and trade, and of changes in governmental economic policy. Prereq: 2130.
3250 Economic History of Europe (3) Beginnings of capitalism in medieval Europe, expansion of Europe and dominance of mercantilism in early modern times, mechanization of industry, changes in agricultural organization, and growing importance of commerce in the 19th century; two world wars and their economic consequences. Prereq: 2110-20.
3310 Comparative Economic Systems (3) Descriptions of economic objectives and alternative public policies for their achievement; prevention of monopoly and concentration through the antitrust laws; direct regulation of business performance. Prereq: 2130.
3341 Government and Business I (3) Microeconomic objectives and alternative public policies for their achievement; prevention of monopoly and concentration through the antitrust laws; direct regulation of business performance. Prereq: 2130.
3342 Government and Business II (3) Topics in antitrust policy, direct regulation and other forms of social control; regulating information, product and managerial responsibility; government-business relations; selected cases. Prereq: 3340.
3410 Principles of Labor Economics I (3) Supply of and analysis of economic goals, institutions and policies in different countries with emphasis on alternative organizational principles and structures. Systems examined will include Soviet-type economies. Prereq: 2110-20-30.
3430 Government and Business I (3) Microeconomic objectives and alternative public policies for their achievement; prevention of monopoly and concentration through the antitrust laws; direct regulation of business performance. Prereq: 2130.
3430 Government and Business II (3) Topics in antitrust policy, direct regulation and other forms of social control; regulating information, product and managerial responsibility; government-business relations; selected cases. Prereq: 3340.
3410 Principles of Labor Economics I (3) Supply of and analysis of economic goals, institutions and policies in different countries with emphasis on alternative organizational principles and structures. Systems examined will include Soviet-type economies. Prereq: 2110-20-30.
4000 Special Topics (3) Student-generated course offered at convenience of department upon student initiative. Subject matter and contents determined by students and instructor with approval of department. Prereq: determined by department.
Economics of Centrally-Planned Economies
5310 Economic Systems (3)
6331 Theory and Practice of Economic Planning (3)
Economics of Labor and Manpower
5410 Seminar in Labor Manpower Economics (3)
5420 Seminar in Wage and Employment Theory (3)
6411-22 Seminar in Labor Economics (3, 3, 3)
Other Economics Courses
5000 Thesis
5002 Non-Thesis Graduation Completion (3-15)
5011-12 Problems in Lieu of Thesis (3, 3)
5610-20-30 Economics Seminar (1, 1, 1)
6000 Doctoral Dissertation and Research

Finance
Professors:
R.M. Duvall (Head), Ph.D. North Carolina;
L.P. Anderson, Ph.D. Wisconsin; R.A. Bohm,
Ph.D. Washington (Missouri); W.W. Dotterweich,
Ph.D. Pennsylvania; H.L. Johnson, Ph.D.
Virginia; E.W. Lambert, Jr., Ph. D. Alabama;
C.P. White (Emeritus), Ph.D. Pennsylvania.

Associate Professors:
A.B. Biscoe, Jr., Ph.D. Florida; J.C. Golden,
D.B.A. George Washington; W.C. Goolsby, Ph.D.
Wisconsin; J.H. Lord, O.B.A. Indiana;
R.E. Shrieves, Ph.D. California (Los Angeles);
D.L. Stevens, Ph.D. Michigan State.

Assistant Professors:
A.L. Auxier, Ph.D. Iowa; H.S. Barton, III, Ph.D.
Georgia State; M. Lindahl-Stevens, Ph.D. Illinois;
J.M. Wachowicz Jr., Ph.D. Illinois (Urbana);

*On leave.

Prerequisites: Accounting 2110-20-30, Economics 2110-20-30, and Statistics 2100 for all courses offered in the finance department except insurance 3020.

Finance (349)

3120-30 Business Finance (3, 3) Principles of financial management. Analysis of demand for funds, internal and external supplies of funds, and their costs to the firm. Prereq: 3120 or 3130.

3510 Money and Banking (3) Nature and functions of money and credit; analysis of monetary and credit systems; money creating role of commercial banks and the Federal Reserve Systems.

4110 Investment Analysis (3) Theory of investment value of various types of securities and options. Prereq: 3130 and Statistics 3220 or 4310.


4130 Topics in Investments (3) Portfolio management policies of institutions, efficient market hypotheses and evidence, options and commodities. Prereq: 4120.

4150-60 Evolution and Function of Financial Institutions (3) Financial system of the United States; emphasis on historical role and functions of financial institutions.

4350-60 Public Finance (3, 3) Public expenditures, federal and state revenue systems, financial administration, budgeting and public debt management.

4370 State and Local Finance (3) Emphasis on revenue systems and division of tax sources.


4510 Monetary Theory and Policy (3) Role of money in the economy. Emphasis upon factors that affect demand for and supply of money. Evaluation of current policy.


4660 Problems in Financial Management (3) Financial decision making, a case approach. Prereq: 3210-30; Statistics 3220.

4800 Business Executive in Residence (3) Development of practical areas of finance curriculum. Leading financial executives, bankers, insurance executives, and realtors will conduct classes. May be repeated. Maximum 6 hrs credit. Prereq: Consent of department.

4990 Senior Seminar (3) Intensive investigation of specific topic in student's area of concentration. Taken last quarter of senior year. Required of all students majoring in finance, insurance, or real estate.

GRADUATE
See page 89 for information on graduate programs.

5002 Non-Thesis Graduation Completion (3-15)

5050 Survey of Finance Functions in Business (3)

5110 Theory of Financial Management (3)

5120 Quantitative Techniques in Financial Management (3)

5130 Financial Administration (3)

5140 Seminar: Managerial Finance (3)

5420-30 Investments (3, 3)

5440 Commodity Futures and Stock Options (3)

5710 Public Finance: Revenues (3)

5720 Public Finance: Expenditures (3)

5730 Finance Administration of Government (3)

5740 Seminar in Public Finance (3)

5800 Executive-in-Residence Seminar for M.B.A. (3)

5810 Financial Markets and Intermediaries (3)

5820 Monetary Theory and Policy (3)

5830 Commercial Bank Management (3)

5990 Research in Finance (3)

6000 Doctoral Dissertation and Research

6110-20 Seminar in Monetary Theory (3, 3)

6410 Analysis for Financial Decisions (3)

6420 Theory of Finance (3)

6510 Seminar in Financial Management (3)

6710-20 Seminar: Fiscal Theory and Public Finance (3, 3)

6810 Financial Institutions and Markets (3)

Insurance (580)

3200 Introduction to Risk and Insurance (3) Consumer-oriented view of risks faced by individuals and business. Methods of risk management, with particular emphasis on life, property, and casualty insurance.

3220 Business Risk Management (3) Principles of risk bearing and risk analysis, economics of risk and insurance.

4710 Life Insurance and Estate Planning (3) Coordination of life and health insurance with protection, conservation, and distribution of estate assets.

4720 Employee Benefit Plans (3) Plan design, cost factors, and funding media for employee benefits, including business life insurance, group insurance, pensions, profit sharing and other forms of deferred compensation.

4740-50 Property-Casualty Insurance Planning (3, 3) Property and casualty contracts and forms and their application to business and personal risks. Must be taken in sequence.

GRADUATE

5110 Theory of Risk Management (3)

Real Estate and Urban Development (849)

2610 Introduction to Real Estate (3) Basic concepts, tools and analysis of real estate. May not be used for degree requirements in business administration.

3610 Principles of Real Estate and Urban Development (3) Introduction to real estate and urban development. Prereq: Economics 3110.

3615 Real Estate Appraisals (3) Theory and practices of determining real estate value. Prereq: 3610.

3630 Real Estate Finance (3) Institutional and governmental procedures and techniques for financing real estate transactions. Prereq: 3610.

4120 Urban Growth and Land Use (3) Analysis of urban growth processes and land use patterns. Prereq: 3610.

4130 Problems of Urban Development (3) Current problems of land use and urban developments. Prereq: 3610.

4640 Management and Development of Real Property (3) Real estate investment analysis and taxation. Prereq: 3630.

4810 Analytical Methods in Real Estate (3) Applications of regression, correlation, and computer based models to real estate investment decisions. Prereq: 3615 and Statistics 4310.

4900 Aspects of Urban Environment (4) (Same as Architecture 4900, Human Services 4900, and Psychology 4900.)

GRADUATE

5002 Non-Thesis Graduation Completion (3-15)

5110 Urban Economic Analysis (3)

5120 Real Estate Analysis (3)

5130 Housing and Urban Land Markets (3)

5140 Real Estate Investment and Taxation Analysis (3)

Management

Professors:
H.D. Dewhirst (Head), Ph.D. Texas; R.W. Boling,
Ph.D. Stanford; C.E. Fritschle (Emeritus), M.Ed.
Colorado; M.E. Gordon, Ph.D. California
(Berkeley); H.W. Henry, Ph.D. Michigan;
A.H. Keally (Emeritus), M.B.A. Pennsylvania;
J.M. Larsen, Jr., Ph.D. Purdue; S.K. Reed, Ph.D.
Edinburgh (Scotland); S.C. Vance, Ph.D.
Pennsylvania (Wm. B. Stokely Professor of
Management); G.H. Whittick, Ph.D. Tennessee.

Associate Professors:
P.A. Chambers, M.B.A. Indiana; O.S. Fowler,
Ph.D. Georgia; R.C. Maddox, Ph.D. Texas;
C.W. Neel (Dean), Ph.D. Alabama.

*Alumni Distinguished Service Professor.
Management (625)
Junior standing is prerequisite to all management courses.

3010 Principles of Management (3) Analysis of basic management functions of planning, organizing, and controlling.

3110 Production Management (3) Analysis of production function. Prereq: Statistics 2100 or 3450. Not usable for management majors.

3111 Operations Management (3) Analysis and synthesis of concepts and techniques for decision making in the operations function. Integration of the operations function with other business functions. Prereq: Management Science 2110-20. Cannot be taken for credit by students who have credit for Management 5110.


3330 Experiences in Organizational Behavior (3) General concepts and personal experience, interpersonal and organizational communication, practice, and evaluation.

3460 Personal and Human Resources Management (3) Processes of effective planning for recruitment, selection, development, and maintenance of human resources. Emphasizes universality of personnel function.

4210 Managerial Strategy and Tactics Applications (3) A general business simulation is used for information processing to provide experience in organizational and analysis of managerial data. Emphasis on skills related to oral and written justification of results. Prereq: Senior standing or consent of instructor.

4230 International Business Management (3) Analysis of factors significant to the manager in international business activities.

4320 Organization of Structure and Behavior (3) Organization of production function. Prereq: 3110-20 or approval of instructor.

4410 Operations Control (3) Analysis of the operations control function. Techniques of short-term forecasting; material and capacity requirements planning; integration of scheduling and operations flows into the total operations function. Prereq: 3111.

4420 Advanced Industrial Problems (3) Cases in production management. Prereq: 15 hrs in major including 4410.

4460 Organizational-Industrial Psychology (3) An analytical and empirical approach to application of psychological tools and knowledge to organizations. Prereq: Statistics 3110 (or Statistics 3310 with consent of instructor). (Same as Psychology 4460.)

4470 Job Analysis and Evaluation (3) Job evaluation as basis for control of wages and salaries. Prereq: 4460.

4520 Evaluation of Personnel Programs (3) Methodologies for criterion development analyzed in areas of selection, training, job evaluation, safety, and labor relations; performance evaluation emphasized. Prereq: 4460-70; Statistics 4310.

4530 Personnel Problems Seminar (3) Case problems in personnel analyzed, applying experimental method and conclusions from personnel research as reported in professional journals. Prereq: 4520.

4610-20 Management Science (3, 3) Applications of mathematical and statistical techniques to problems of production management. Must be taken in sequence. Prereq: 30 hrs of mathematics and statistics, and consent of instructor.

4710 Enterprise Planning and Control (3) Concepts and cases on managerial functions of planning and control in business firm or not-for-profit organization. Emphasis on formal long-range strategic planning in changing environment. Team project to develop long-range plan for hypothetical enterprise.

4801-02-03 Readings and Research in Personnel Management (1, 2, 3) Prereq: 4460, Statistics 4310, and consent of instructor.

GRADUATE
See page 89 for information on graduate programs.

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5050 Production Management (3)

5110 Organization Theory (1)

5120 Organization Theory II (3)

5130 Managerial Planning and Control (3)

5170-80-90 proseminar in Organizational Psychology (3, 3, 3)

5210 Personnel Management (3)

5220 Wage and Salary Administration (3)

5230 Human Problems in Administration (3)

5250-60-70 Organizational-Industrial Psychology (1-3, 1-3, 1-3)

5320 Management Problems in Industrial Research (3)

5410-20-30 Production Management (3, 3, 3)

5610-20 Organizational Behavior (3, 3)

5710 Management of Foreign Operations (3)

5810 Energy Management: Theory and Practice (3)

6000 Doctoral Dissertation and Research

6110 History of Management Thought (3)

6120 Advanced Organizational Theory (3)

6130 Seminar in Contemporary Management Issues (3)

6250-60-70 Seminar in Organizational Psychology (3, 3, 3)

6380 Seminar in Industrial Psychology (3)

6900 Field Work in Industrial Psychology

Management Science Programs

Associate Professors: C.E. Bell (Chairman), Ph.D. Yale; R.S. Garfinkel, Ph.D. Hopkins.

Assistant Professor: R.E. Rosenthal, Ph.D. Georgia Tech.

Management Science (627)

2110-20 Decision Models (3, 3) Introduction to the use of quantitative techniques in the decision-making process. Prereq: Mathematics 1560, Statistics 2160, and Computer Science 1410 or Office Administration 2750.

3130 Case Studies in Management Science (3) Analysis of quantitative approaches to management decision problems through the case method. Emphasis on practical implementation of methods from 2110-20 and their extensions. Prereq: 2110-20 or consent of instructor.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5100 Introduction to Management Science Techniques (3)

5310-20-30 Management Science Methods (3, 3, 3)

5355 Mathematical Programming Computational Systems (2)

5340 Application of Management Science Methods (3)

5810 Special Topics in Management Science (3)

5910 Management Science Problems (1-6)

6000 Doctoral Research and Dissertation

6110-20-30 Models for Production Systems (3, 3, 3)

6210-20 Network Flows (3, 3)

6310 Integer Programming (3)

6410 Large Scale Mathematical Programming (3)

6510 Nonlinear Optimization (3)

6610 Markovian Decision Models (3)

6620 Queuing Models (3)

6710 Location Models (3)

6810 Special Topics (3)

6910-20-30 Management Science Seminar (1-3, 1-3, 1-3)

Marketing and Transportation


Assistant Professors: F.L. Barbour, Ph.D. Illinois; E.R. Cadotte, Ph.D. Ohio State; J.H. Foggan, Ph.D. Indiana; R.L. Jenkins, Ph.D. Ohio State; R.L. Spior, Ph.D. Georgia.

Marketing (632)
Nine quarter hours in general economics including Economics 2110-20 or the equivalent are prerequisite to all courses in marketing.


3120 Marketing Management (3) Analysis of marketing management, identifying market opportunities, planning marketing program, and implementing competitive strategies. Prereq: 3110.

3210 Marketing Systems (3) Macromarketing systems approach from viewpoint of decision maker. Examination of inputs, outputs, organizations, and goals of marketing systems. Consideration of comparative marketing systems. Prereq: 3110.

4140 Marketing Communications I (3) Examination of firm's personal communications function. Managing sales forces, including personal selling concepts. Particular emphasis on role of sales organization in marketing program. Prereq: 3110-20.


4230 International Marketing (3) Management of international marketing activities involving the firm's marketing strategies in international business. Prereq: 3110-20.

4310 Retailing Management (3) Structure and environment of retailing and its relationship to other parts of the economy. Research and decision making in selected areas of store management. Prereq: 3110-20.

4440 Environmental Issues in Marketing (3) Environmental forces which serve as constraints on business decision maker. Emphasis is placed upon current issues and social and ethical implications of marketing decisions. Prereq: 3110-20. Statistics 4310, or 3220 or 4250.

4510 Marketing Information Planning (3) Planning and obtaining information for marketing decision making. Information needs, data collection processes, methods of analysis, and interpretation procedures are integrated to serve decision maker. Prereq: 3110-20; Statistics 4310, or 3220 or 4250.

4520 Applied Marketing Research (3) Quantitative techniques, behavior concepts, and marketing research methods in study of consumer purchasing, sales forecasting, and other marketing problems. Prereq: 4510.

4560 Market Opportunity Analysis (3) Developing understanding of various approaches available for evaluating opportunity that may exist within a market. Emphasis on relationship between analysis of markets and marketing decision making. Topics covered will include basic consumer behavior concepts, alternative sources of market information, information analysis techniques, interpretation of marketing information, and forecasting. Prereq: 3110-20, 4510.

4710 Marketing Decisions and Strategies (3) Pragmatic orientation to application of advanced analytical and critical concepts and skills within marketing environments. Emphasis on integration of knowledge from the component areas of marketing into cohesive, well-organized marketing program. Prereq: 24 hrs of marketing including 4510 and 4650 or consent of instructor. Course should be taken as close to graduation as possible.

4808 Honors: Executive-In-Residence Seminar (3) Student interaction with top-level marketing executives is used as a primary vehicle to show how conceptual marketing knowledge is applied in the business world in a major marketing subject area (e.g., promotion, consumer behavior, marketing strategy, etc.) Prereq: Marketing 3210, 4210, 4510, and consent of instructor. 4650 is a recommended but not required prerequisite.

4818-28 Honors: Marketing (3, 3) Marketing trends and developments. Advanced marketing theory and application. Can be substituted by eligible students for other courses in marketing with consent of department. Prereq: Consent of department.

GRADUATE

See page 89 for information on graduate programs.

5002 Non-Thesis Graduation Completion (3-15)

5050 Survey of Marketing (3)

5200 Marketing Management (3)

5210 Sales Force Management (3)

5220 Promotion Management (3)

5230 Analysis and Design of Marketing Systems (3)

5300 Marketing Research (3)

5350 Buyer Behavior Analysis for Marketing (3)

5400 Analyzing Market Opportunity for Marketing Decisions (3)

5410 Marketing Strategy (3)

5450 International Marketing Management (3)

5990 Research in Marketing (3)

6000 Doctoral Dissertation and Research

6050 Macroe/Theoretical Foundations of Marketing (3)

6100 Design and Measurement in Marketing Research (3)

6150 Marketing Research Applications (3)

6200 Buyer Behavior (3)

6250 Selected Problems in Consumer Behavior (3)

6300 Marketing Decision Models (3)

6350 Current Topics in Marketing (3)

Transportation (881)

Nine quarter hours in general economics are prerequisite to all courses in transportation. Transportation 3110-20 or consent of the instructor are prerequisite to all courses numbered above 4000.

3110 Introduction to Transportation (3) Economic, social, and political aspects of national transportation system; economic characteristics of modes of transport; regulatory problems.

3115 Business Logistics (3) Introduction to management of physical distribution and supply systems; consideration of design concepts, cost determinants, firm and environmental constraints. Prereq: 3110, Statistics 2100 or equivalent.

3120 Traffic Management (3) Concepts and problems of freight traffic management; rate-making theories; rate and classification systems. Prereq or coreq: 3115.

3310 Transportation Rates (3) Analysis of current railroad and motor carrier tariffs, classification systems, rate systems. Prereq: 3120.

4110 Railroad Transportation (3) Analysis of economic characteristics, regulatory provisions, and organizational patterns of the railroad industry.

4120 Highway Transportation (3) Analysis of economic characteristics, regulatory provisions, and organizational patterns of motor carrier industry.

4310 Water Transportation (3) Analysis of economic characteristics, regulatory provisions, and organizational patterns of water transportation system.

4420 Air Transportation (3) Analysis of economic characteristics, regulatory provisions, and organizational patterns of commercial aviation.

4510 Urban Transportation (3) Analysis of economic characteristics, regulatory provisions, and management of transportation firms operating in urban areas.

4610 Carrier Pricing Strategy (3) Historical development of carrier pricing systems and analysis of current strategy.

4620 Carrier Management (3) Application of management decision-making in transportation. Prereq: Senior standing with minimum of 18 hrs in transportation.

4720 Business Logistics: System Management and Control (3) Consideration of control techniques and management decision problems in logistics operations.


4810 International Transportation and Logistics (3) Introduction to import-export traffic management, international carrier management problems, and discussion of transportation systems in other countries.

4820 Current Topics in Transportation and Business Logistics (3) Seminar designed to study specific current problems areas in transportation and distribution. Topic announced prior to offering. May be repeated once for credit. Prereq: Consent of instructor.

4830 Supervised Readings in Transportation and Business Logistics (3) Directed readings and research on subject of mutual interest to student and staff member. Prereq: Senior standing with minimum of 18 hrs of transportation.

4910 Carrier Liability and Claims (3) Rights and liabilities of carriers, consignors, and consignees; claim procedures and claim prevention.

4920 Transportation Law and Procedures (3) Analysis of Interstate Commerce Act and related statutes, practices, and procedures before regulatory agencies.

4930 Transportation Policy (3) Analysis of regulatory, promotional, and planning policies of federal, state, and local governmental units.

GRADUATE

See page 89 for information on graduate programs.

5002 Non-Thesis Graduation Completion (3-15)

5050 Survey of Transportation and Logistics (3)

5110 Theory and Functions of Economic Regulation (3)

5120 Management and the Pricing Problem (3)

5130 Transportation Management Problems (3)

5210 Business Logistics (3)

5220 Physical Distribution Strategy (3)

5510 Urban Transportation Policy (3)

5810 International Transportation Policy (3)

5910 Transportation Law and Carrier Liability (3)

5920 Current Topics in Transportation and Logistics (3)

5990 Research in Transportation and Business Logistics (3)

6000 Doctoral Dissertation and Research

6110 National Transportation Policy (3)

6210 Seminar in Transportation and Logistics Models (3)

6220 Transportation and Logistics Systems—Analysis and Simulation (3)

Office Administration (735)

Professors:

G. A. Wagoner (Head), M.S. Indiana; E.W. Davis (Emeritus), M.A. New York; D. Reese, Ph.D. Iowa; E.R. Smith, Ph.D. Ohio.

Associate Professors:


Assistant Professors:

P.G. Campbell, M.S. Austin Peay State; H.C. Petree, M.S. Tennessee; C.S. Sheddan, M.S. Tennessee.
Junior standing or the approval of the department head is required for registration in courses numbered 3000 or above.

2110 Beginning Typewriting (3) Development of typewriting skills. Straight-copy speed stressed. Special emphasis on typing letters, tabulation preparation and transcription. Prerequisite: previous training or with one-half unit of high school credit. Students with one year of high school typewriting may not receive credit for 2110.

2120-30 Intermediate Typewriting (2, 2) Refinement of typewriting skills with special emphasis in production of letters, tabulation, and manuscripts. Prerequisite for 2120—one year of high school typewriting or minimum grade of C in C 2110. Prerequisite for 2130—two years of high school typewriting or minimum grade of C in C 2120. Students with two years of high school typewriting may not receive credit for 2120.

2180 Word Processing (3) One-quarter course to cover concepts and develop techniques and basic applications of word processing. Emphasis on equipment and operational competency—integrating statistical production, word processing, and simulated office settings. Statistical typewriting, automatic typewriters, transcription skills, and judgmental decisions in producing hard copy are included. Prerequisite: Minimum grade of C in C 2130.

2310-20-30 Beginning Shorthand and Transcription (3, 3, 3) Theory of Gregg shorthand; development of dictation and transcription abilities. First quarter for students with no previous training in shorthand. Students with one year of high school shorthand receive credit for 2310 and should begin with 2320; students with two years receive no credit for 2310 or 2320. Prerequisite: C 2110 or equivalent; for 2320-30, 3, 3, C 2130 in previous shorthand course 5 hrs. per week.

2750 Electronic Data Processing (3) Computer programming with special emphasis on business applications. Prerequisite: Mathematics 1560 or 1860 or equivalent.

3210 Office Equipment Problems (3) Operation of and comparative data on duplicating processes, dictating, and transcribing equipment, and adding and calculating machines; determining costs of machine operation. Prerequisite: 2140. 2 hrs. and 2 hr-lab.

4310 Business Letter Writing (3) Principles, practices, and mechanics of business letter writing; principles applied by solving letter-writing problems.

4320 Business Report Writing (3) Principles and mechanics of composing reports, preparation, form, and presentation in formal research reports and thesis writing, and sources of business information.

4410-20 Advanced Shorthand and Transcription (3, 3) Improvement of ability to take dictation and transcribe mailable copy; emphasis on skill necessary to meet occupational standards. Prerequisite: 2320. 3 two-hr. periods.

4430 Supervised Office Experience (3) Orientation to office positions by actual office work; telephonic techniques, sources of information required by secretary and office etiquette. Prerequisite: 3210, 4310. 2 three-hr periods.

4510 Office Management (3) Function of office; office building; physiological factors; office environment; furniture and equipment; machines and supplies; selection of employees; compensation and incentive plans; job analysis and supervision.

4520 Office Systems (3) Routes and procedures for correspondence and mailing; filing systems; payroll computations; office planning and layout; systems of control.

4540 Problems in Office Management (3) Work simplification; cost control and reduction; development of and preparation of office manuals. Prerequisite: 3210, 4320, approval of instructor.

4551 Problems in Office Management: Systems Analysis (3) Prerequisite: 3210, 4320, 4520 or equivalent.

4552 Problems in Office Management: Form Design (3) Prerequisite: 3210, 4320, 4520 or equivalent.

4553 Problems in Office Management: Records (3) Prerequisite: 3210, 4320, 4520 or equivalent.

4554-64 Problems in Office Management: Mechanization (3, 3) Prerequisite: 3210, 4320, 4520 or equivalent.

4555 Problems in Office Management: Correspondence (3) Prerequisite: 3210, 4320, 4520 or equivalent.

4556-66 Problems in Office Management: Supervision (3, 3) Prerequisite: 3210, 4320, 4520 or equivalent.

4557 Problems in Office Management: Work Simplification (3) Prerequisite: 3210, 4320, 4520 or equivalent.

4558-68 Problems in Office Management: Training (3, 3) Prerequisite: 3210, 4320, 4520 or equivalent.

4559-69 Problems in Office Management: Work Measurement (3, 3) Prerequisite: 3210, 4320, 4520 or equivalent.

4710 Punched Card Methods (3) Card design, key punching, sorting, tabulating, and preparation of reports; application to problems in fields of accounting, statistics, personnel, economics, psychology, education, and other areas of research. 3 hrs. and 2 two-hr. labs.

4720 Punched Card Application (3) Problems on tabulator and collator, introduction to programming, system design, and preparation of procedure manuals and flow charts. Prerequisite: 4710 or equivalent.

GRADUATE

5011 Problems in Lieu of Thesis (3)

5050 Data Processing in Business (3)

Statistics (962)

Professors: C.C. Thigpen (Head), Ph.D. Virginia Polytechnic; D.S. Chambers, M.B.A. Texas; R.A. Mclean, Ph.D. Purdue.

Associate Professors: H.A. Lasater, Ph.D. Rutgers; J.W. Philpott, Ph.D. Virginia Polytechnic; R.O. Sanders, Ph.D. Texas; D.J. Wheeler, Ph.D. Southern Methodist; M.S. Younger, Ph.D. Virginia Polytechnic.

Assistant Professors: G.B. Ranney, Ph.D. North Carolina State (Raleigh); S.W. Ward, Ph.D. Virginia Polytechnic.

Undergraduate courses numbered 4000 and above presuppose familiarity with the basic probability distributions in statistics and with the general concepts of statistical estimation and hypothesis testing. Students intending to take 2100 and one additional undergraduate course are advised to select the latter from among 3000-level courses.

2100 Probability and Statistics (3) Elementary theory of probability; frequency and density functions; expected values and variances; fundamental concepts of statistical inference. Cannot be taken for credit by students who have credit for 3450. Prerequisite: Mathematics 1560 or 1850.

3110 Regression and Correlation Methods (3) Methods of linear and multiple-linear regression and correlation; nonparametric measures of association. Cannot be taken for credit by students who have credit for 4310. Prerequisites: 2100 or 4340.

3220 Analysis of Time Series (3) Some statistical methods applicable to analysis of trends and time series; graphic presentation and analysis, index numbers, curve fitting, correlation, trends, analysis, seasonal and cyclical variation. Prerequisite: 2100 or 4340.

3310 Industrial Statistics (3) Shewhart Control Charts, acceptance sampling by attributes, Military Standard sampling plans. Special applications of control charts, acceptance sampling theory and procedures. Prerequisite: 2100 or 3450.

3410 Sampling Methods Useful for Surveys (3) Expository treatment of various types of probability sampling methods illustratively developed. Emphasis on procedures for selection of sample and calculation of estimates of parameters of interest for finite populations. Students divisionally credit for students with credit for 4415. Prerequisite: 2100 or 3450.

3450 Statistics for Engineering (3) Survey of statistical methods with special applications for engineering students; frequency distributions, selected sampling distributions, some tests of significance. Cannot be taken for credit concurrently with 2100. Prerequisite: Mathematics 2840.

3460 Statistics for Engineering (3) Continuation of 3450 with emphasis on chi-square statistic, analysis of variance, and multiple regression analysis. Prerequisite: 3450; Mathematics 2850.

3550 Random Processes and Probability Models (3) Functions of random variables, multivariate distributions, conditional expectations, waiting time distributions, derived distributions, sampling distributions, special tests of significance. Cannot be taken for credit concurrently with 2100. Prerequisite: Mathematics 2850.

4250 Nonparametric Methods (3) Measures of association, chi-square tests, analysis of variance with ranked data, paired and multiple comparisons in preference testing; questionnaire evaluation.

4310 Regression Analysis (3) Linear regression and correlation, multiple regression, stepwise methods, polynomial regression, use of dummy variables. Use of standard regression computer programs. Elementary theory and applications.

4410 Design of Experiments (3) Principles and procedures for experimental design. Randomization, choice of size and number of experimental units, utilization of blocking arrangements. Interpretation of experimental data.

4415 Sampling Techniques and Theory (3) Procedures used in probability sampling for a variety of arrangements of statistical universes and development of estimators and standard errors associated with sampling schemes. Some properties of estimators. Determination of sample size. Not available for credit to students with credit for 3410.

4750 Statistical Problems in Business (3) Case study course of statistical problems in various areas of business. Prerequisite: 15 hrs. in statistics and consent of instructor.

GRADUATE

Prerequisites for a major: Mathematics 2840-50-60, Statistics 3450 or equivalent.

5002 Non-Thesis Graduation Completion (3-15)

5050-60-70 Statistical Analysis for the Behavioral Sciences (3, 3, 3)

5110 Introduction to Probability Theory (3)

5120-30 Theory of Statistical Inference (3)

5210 Stochastic Processes (3)

5211 Elementary Statistics (3)

5250-60-70 Applied Statistics for Engineering and Natural Sciences (3, 3, 3)

5311 Fundamental Concepts of Probability Theory (3)

5312 Statistical Methods (3)

5610 Special Topics in Statistics (3)

6060 Applied Multivariate Analysis (3)

6070 Factor Analysis (3)

6120 Stochastic Processes II (3)
Interdepartmental Unit

Business Administration (205)

1110 Business Administration (3) Introduction to business. Not open to students with more than 3 credit hrs of economics.

4430 Business Policy (3) Analysis of business problems and managerial decision making through case study method and written reports. Prereq: Core requirements except business law (see page 82) and senior standing.

4610 Seminar in Small Business Assistance (3) Application of classroom learning to problems of small business in the community. Student is given opportunity to apply business concepts and develop analytical skills. Upon completion of selected readings relevant to small or minority enterprise, students are assigned a project on basis of interest, ability, and experience. Students work in teams under supervision of a participating professor within the College of Business Administration. Approval for enrollment must be secured from instructor. May be repeated. Maximum 9 hrs credit.

4990 Institutional and Organizational Research (3) Design, implementation, and evaluation of cross-disciplinary research on organizational and institutional change. Enrollment requires membership on the Standing Committee on Improvement of Learning and Teaching in the College of Business Administration. Prereq: Recommendation of student's department head and approval of selection board of Standing Committee.

GRADUATE

See page 89 for information on graduate programs.

5310 Business Policy (3)

5410 Business and Its Societal Environment (3)

5610 Seminar in Applied Business Analysis (3)

Center for Business and Economic Research

STAFF

D.A. Hake (Director), Research Associate Professor, Ph.D. Tennessee
W.F. Skidmore, Associate Director, M.S. George Washington
K.E. Quindry, Research Professor, Ph.D. Kentucky
W.C. Goolsby, Associate Professor of Finance, Ph.D. Wisconsin
N.O. Alper, Research Assistant Professor, Ph.D. Pittsburgh
P.A. Price, Research Associate, B.S. Tennessee
N.C. Schoening, Research Associate, M.S. Ohio State
M.B. Lee, Research Assistant, M.B.A. Tennessee
College of Communications

Donald G. Hileman, Dean
Kelly Leiter, Associate Dean for
Undergraduate Studies
George A. Everett, Assistant Dean for
Graduate Studies

Communication has become increasingly significant in today's complex society. The growth of specialization, the widening gaps among segments of society, and the inescapable nature of world conflict point up the need for a greater understanding of communication processes and for the education of young men and women capable of perceptive understanding of the communications media.

The College of Communications offers programs designed to acquaint students with the nature of communication and to prepare them for professional work in a variety of communications fields. The college is composed of the School of Journalism and the Departments of Advertising and Broadcasting. The curricula of these three academic divisions have a common base of courses beyond which choices will permit the student to develop special interests.

The American Council on Education for Journalism has accredited the News- Editorial and the Advertising programs. The college is a member of the American Association of Schools and Departments of Journalism and the Association for Professional Broadcasting Education.

Admission Requirements

Admission requirements are stated on page 17. Communications majors must demonstrate ability to use a typewriter proficiently before beginning their professional courses at the 2000 level.

Students transferring into the college, either from another institution or another college in the University, must have at least a 2.0 average.

Majors must complete English 1010-20-31/32/33 with a minimum grade of C in each course before enrolling in any 2000-level (or higher) course in the college.

Majors will not be admitted to upper-division (3000 and 4000) courses in the college unless they have an average of at least 2.3 in lower-division courses in the college. By major these courses include: Advertising—Communications 1110, Journalism 2215, Advertising 3000; Broadcasting—Communications 1110, Journalism 2215, Broadcasting 2750, Advertising 3000; Journalism—Communications 1110, Journalism, 2215-20-30.

Curriculum

The college curriculum offers academic majors in advertising, broadcasting, and journalism. Through core introductory courses, students receive a basic view of the nature of communications.

The freedom of electives provided within the programs permits students to develop specialized interests in a variety of fields. In consultation with an adviser, they may plan individual programs leading to newspaper, magazine, radio, television, public relations, or advertising work. They may prepare for careers in agricultural or industrial journalism. They may select related courses to develop a specialty in writing news of science, government, and business. Others may elect courses to prepare themselves as writers on foods, fashions, and home interests, or they may combine training in communications with work in secretarial science.

Students in other divisions of the University may take certain courses for training in effective communication or for an understanding of the social role of the mass media.

Students who have completed the basic courses in the college may earn three quarter hours of practicum credit for professional work in the major field.

Approval of the adviser and the departmental chairman must be obtained before such work is begun.

Upper Division

Permission of instructor is prerequisite for all 3000- and 4000-level courses, with the exception of Advertising 3000, in the College of Communications.

Satisfactory/No Credit Option

The purpose of this option is to encourage students to venture beyond those courses in which they usually do well and, motivated by their own intellectual curiosity, to explore subject matter in which performance may be somewhat less outstanding than work in preferred subject fields.

This option applies only to general elective courses. No course that is a part of the specific requirements of the College of Communications or the student's major department can be taken under this option. For example: social science, humanities, and speech electives required by the various departments cannot be taken under this option.

Courses earning a "satisfactory" grade will count as hours for graduation but not for calculating the grade point average. A student who wishes to take a S/NC course must indicate this at the time of registration. Under no circumstances may the student change from S/NC to regular credit or from regular credit to S/NC after the deadline for adding courses.

Course Load

The maximum number of hours which can be taken by an undergraduate without special permission is 19 hours. Permission to take 20 or more hours must be obtained from either the dean or associate dean of the college.
Cooperative Program
The college, in cooperation with the University-wide Undergraduate Cooperative Education Program, has developed a cooperative program with the media, advertising and public relations agencies, and the communications departments of business organizations where interested students might combine their education with a productive work experience. At present, only a limited number of such opportunities are available. Although other arrangements can be made, a student will enter the program only after completing one or two quarters at the University. A student will alternate with another student, with one working full-time for the employer for one quarter while the other person is in school, etc. The typical program is arranged for a five-year period, with the student spending the final three quarters of the senior year on campus.

The Cooperative Program gives the student an opportunity to gain practical experience, develops a sense of responsibility and cooperation, creates greater interest and incentive in academic studies, provides part of the expenses, and may lead to permanent employment after graduation.

Information concerning this program may be obtained by writing to the Undergraduate Cooperative Education Program, Division of Continuing Education, 415 Communications and Extension Building, The University of Tennessee, Knoxville, Tennessee 37916.

The Edward J. Meeman Distinguished Professorship
As a result of a $200,000 grant to the School of Journalism by the Edward J. Meeman Foundation, outstanding journalists and journalism educators are brought to the campus as distinguished professors.

Turner Catledge, former executive editor of The New York Times, and John H. Seigenthaler, the administrator of the Pulitzer Prizes and outstanding teacher at the Columbia University Graduate School of Journalism, have held this distinguished professorship.

Equipment and Facilities
The Communications and Extension Building provides extensive facilities for communications instruction. The college has a large workshop with professional equipment for instruction in writing, editing, photography, advertising, and broadcasting. In addition, advanced students gain experience through summer internships arranged with the University's general program of publishing and broadcasting. The Office of Public Relations, campus publications such as the student newspaper, and the University radio station provide practice for communications majors. The Tennessee Press Association and Tennessee High School Press Association, centered at the University, present opportunities for special work and study.

Requirements for Graduation
The Bachelor of Science in Communications is awarded to majors who complete a program of 194 hours prescribed under departmental requirements listed below. At least 140 of these hours must be taken in courses other than the major and related communications fields. At least 27 of the hours in the major must be taken at The University of Tennessee. Normally, no more than 22 transfer credits in the major will be applied to the 194 hours. Journalism 2210 is the only course in the College that may be taken by correspondence.

AMERICAN HISTORY
Students lacking a high school credit of American history must take nine quarter hours of American history in addition to History 1510-20. Those hours may be applied to the general electives requirement.

FOREIGN LANGUAGES
One year of foreign language on the college level is required unless two units of high school credit is presented in which case 8 hours selected from the following courses may be substituted: Anthropology 2510, 2520, 2530; Geography 1810-20 or 2110-20-30; Mathematics 1540-50; Philosophy 1510-20, 2510-20, 3110-21-31-41; Psychology 2500, 2530, 2540; Religious Studies 2610. The requirement may also be fulfilled with a foreign language.

ENGLISH
This requirement is fulfilled by English 1010-20. English 1020-30 or 1030 may be substituted for 1032 with the consent of the adviser. The eight hours of literature may be selected from English 2510-20-30-40 and 2560-70-80. Upper-division literature courses may be substituted by students with a B+ average in freshman English at UT.

PROFESSIONAL COURSES
The major requires certain professional courses which may be selected from the following: Advertising 3740, 4510-20-30, 5310, 5350; Journalism 3120, 3410, 3710, 3720, 3810, 3910, 4410, 4420, 4950, 4990; Broadcasting 2750, 3360, 4020, 4670, 4680; Accounting 2110-20; Marketing 4120, 4230, 4310, 4440, 4510, 4520, 4710; Speech 3011; Office Administration 4310, 4320.

SOCIAL SCIENCE AND HUMANITIES
Social science electives may be selected from geography, economics, political science, psychology, history, sociology, anthropology, classics (except grammar and composition courses), and upper-division philosophy and religious studies courses. Humanities electives include English, speech and theatre, music (except applied music), art, language culture courses (not grammar and composition) and upper-division philosophy and religious studies courses.

GENERAL ELECTIVES
All electives are subject to the adviser's consent. Students are advised to consult the University's degree requirements as stated in the front section of this catalog as well as the requirements for the college or department.

Undergraduate Curriculum

Advertising

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<th>Course</th>
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TOTAL: 194 hours

*See Requirements for Graduation.

Broadcasting

LOWER-DIVISION CURRICULUM
(Required of all broadcasting majors)

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*College of Communications
### NEWS AND PUBLIC AFFAIRS SEQUENCE

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TOTAL: 194 hours

### MANAGEMENT SEQUENCE

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TOTAL: 194 hours

### PRODUCTION/PERFORMANCE SEQUENCE

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TOTAL: 194 hours

*See Requirements for Graduation.

### Journalism

#### LOWER-DIVISION CURRICULUM
(Required of all journalism majors)

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### NEWS-EDITORIAL SEQUENCE

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TOTAL: 194 hours


#### Option B: For students primarily interested in editing. Required: Journalism 3310, 3220, 4420. Electives: Journalism 3510-20-30, 3810, 3910, 4130.

#### Option C: Any approved combination of Options A and B (including the required courses of one group) for students interested in both writing and editing.

### PUBLIC RELATIONS SEQUENCE

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<table>
<thead>
<tr>
<th>Senior</th>
<th>Hours Credit</th>
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<tr>
<td>Journalism 4510-20-30 or 4990</td>
<td>3</td>
</tr>
<tr>
<td>or Advertising 4340 or 4470</td>
<td>3</td>
</tr>
<tr>
<td>Journalism 3410, 3730, 4410</td>
<td>9</td>
</tr>
<tr>
<td>Broadcasting 3650 and 3670</td>
<td>6</td>
</tr>
<tr>
<td>Political Science 4535-36</td>
<td>6</td>
</tr>
<tr>
<td>Marketing 3110-20</td>
<td>6</td>
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<tr>
<td>*Courses from specialization area</td>
<td>6</td>
</tr>
<tr>
<td>*General electives</td>
<td>9</td>
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</tbody>
</table>

TOTAL: 194 hours

#### Specialization Area Options:

a) **Urban or Governmental Public Relations**
   Required: Sociology 3420, Political Science 4740-50, Elective: Sociology 4330, 4530, 4930; Political Science 3555, 3566, 4610-20; Psychology 4900; Office Administration 4310-20.

b) **Educational Public Relations**
   Required: Sociology 4410; Educ. C & I 3020, 4750; Electives: Sociology 4530; Educ. C & I 4530; Psychology 3540; Office Administration 4310-20.

c) **Industrial or Corporate Public Relations**
   Required: Industrial Management 3010, Marketing 4140-50; Electives: Speech 3021, 5440; Business Law 4110-20; Economics 3410-20; Educ. C & I 4750, Office Administration 4310-20.

d) **Other Areas**
   Another area of specialization, and courses to develop it, may be selected with the adviser's help and approval.

*See Requirements for Graduation.

Eighteen hours of liberal arts electives may be selected from: Anthropology 210-20; Geography 1910-20 or 2110-20; Geology 1810-20 or 2110-20-30; Mathematics 1540-50-60 or 1840-50; Philosophy 1510-20, 2510-20, 3111-21, 31-41; Psychology 2500-20, Religious Studies 2610-20.

### Departments of Instruction

#### Communications (259)

**Professors:**
J.B. Haskins, Ph.D. Minnesota; D.G. Hileman, Ph.D. Illinois; H.M. Hoch, Ph.D. Northwestern; B.K. Leiter, Ph.D. Southern Illinois; J.R. Lynn, Ph.D. Southern Illinois.

**Associate Professors:**
G.A. Everett, Ph.D. Iowa; H.H. Howard, Ph.D. Ohio; E.F. Shaw, Ph.D. Stanford; S.K. Zeigler, Ph.D. Michigan State.

1110 Introduction to Communications (3) Nature, functions, responsibilities of mass communications media and agencies; Survey of newspapers, magazines, radio, television, film advertising, public relations, press associations, and specialized publications. Open to majors who have had no communications courses and to nonmajors below junior level.

**GRADUATE**

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5100 Introduction to Graduate Studies (3)

5120 Research Methods (3)

5130 Advanced Principles of Mass Communications (3)

5140 Communications Theory (3)

5150 Seminar in Communications Issues (3)

5970 Independent Study (3)

6000 Doctoral Research and Dissertation

6100 Seminar in Communications Theory (3)

6200 Seminar in Communication Topics (3)

6300 Survey Research Methods in Communications (3)

6310 Experimental Research Methods in Communications (3)

6320 Seminar in Historical Research Methods in Communications (3)

#### Advertising (012)

**Professors:**
R. Joel (Head), M.A. Wisconsin; D.G. Hileman, Ph.D. Illinois; J.R. Lynn, Ph.D. Southern Illinois.

**Associate Professors:**
A.D. Fletcher, Ph.D. Illinois; S.K. Zeigler, Ph.D. Michigan State.

**Assistant Professor:**


3630 Advertising Copy and Layout (4) Ideas and their translation into persuasive words and pictures. Principles and techniques of copy and layout. Lecture and labs. Prereq: 3000 or Marketing 4150.

3650 Basic Advertising Research (3) Use of research in solving media, creative, and managerial problems in advertising. Introduction to secondary information sources and primary research methodology. Prereq: 3000 or Marketing 4150.

3740 Retail Advertising and Promotion (3) Planning of retail advertising and promotion; practice in retail copy and layout; selecting media; research. Prereq: 3000 or Marketing 4150.
4000 Advanced Advertising Copy and Layout (4)
Creative strategy and execution of advertisements for mass media. Problems in idea creation for advertisers. Lecture and labs. Prereq: 3830.
4360 Advertising Media (3) Media markets and audiences. Evaluation of media in relationship to communication needs of advertisers. Prereq: 3000 or Marketing 4150.
4510-20-30 Practicum (1, 1, 1) Prereq: 3000. S/NC. GRADUATE
5310 Current Issues in Advertising (3)
5350 Advanced Advertising Research (3)
5510 Advertising (3)
5970 Independent Study (3)

Broadcasting (202)
Professor: D.W. Hoit (Head), Ph.D. Northwestern.
Associate Professors: H.H. Howard, Ph.D. Ohio; I.G. Simpson, M.S. Syracuse.
2750 Introduction to Broadcasting (3) Theory, history, regulation, and economic aspects of broadcasting industry and its functions in society.
3360 Television and Radio Advertising (3) Principles of successful radio-television advertising; emphasis on media research, rate structure, programming, creativity; television commercials.
3610 Radio-Television News (3) Theory and techniques of writing news and features for broadcast media. Editing and rewriting press association dispatches, gathering local news, recording interviews, and preparing newscasts and feature programs. 2 hrs and 1 lab. Prereq: Journalism 2220 or consent of instructor.
3650 Radio-Television Writing (3) Theory and techniques of writing broadcast scripts except news and documentaries. Special events, interviews, musical scripts, radio talks, documentaries, and promotion material.
3670 Television Film News (3) Theory and techniques of making films for television, film processing and editing techniques. Emphasis on news and documentary broadcasts. 2 hrs and 1 lab.
4010 Speech for Broadcasting (3) Fundamental broadcast conditions affecting the announcer: pronunciation and oral interpretation of general American speech; Spanish, Italian, German and French pronunciation. Prereq: Strongly recommended but not mandatory, Speech 2310, 3050.
4020 Radio Production (3) Study of radio productions, past and present. Familiarization with production tools and techniques. Group and individual production activities. Prereq: 2750 or consent of instructor.
4021 Advanced Radio Production (3) Application of the theories, techniques, and tools of radio production to creative programming of a professional level of sophistication and quality. Prereq: 4020 or consent of instructor.
4030 Television Production (3) Overview of elements of television production: cameras, sound, lighting, film videotape recording, optics, and studio control centers. Presented with the layman and professional broadcast student in mind. Prereq: 4020 or consent of instructor.
4040 Advanced Television Production (3) A semi-independent course in program origination, production, or directing, and performance with orientation to the professional broadcast student. Prereq: 4030 or consent of instructor.
4510-20-30 Practicum (1, 1, 1) Prereq: Consent of instructor. S/NC.
4610 Broadcast News Operation (3) Theory and practice in covering local news and public affairs events for radio and television. Gathering and production of news broadcasts, using tools of broadcast newsgathering person. 2 hrs and 1 lab. Prereq: 3610 and 3670 or permission of instructor.
4670 Radio-Television Management (3) Business policies and practices of networks and stations. Departmental functions, cost and income figures, sales techniques, promotion, advertising agencies, and governmental regulations. Lectures by commercial broadcasters. Prereq: 2750 or consent of instructor.
4680 Broadcast Sales Management (3) Principles and techniques of television and radio sales, case studies in sales development, pricing, promotion, and other areas of sales management. Prereq: 2750 or consent of instructor.
5510 Broadcasting (3)
5610 Public Affairs Broadcasting (3)
5620 Broadcast Law and Regulations (3)
5630 Broadcast Documentary Writing (3)
5650 Radio-Television Program Development (3)
5970 Independent Study (3)

School of Journalism (504)
Associate Professors: J.N. Adamson, M.S. Tennessee; J.A. Crook (Director), Ph.D. Pennsylvania State; R.L. Heslop, Ph.D. Iowa; L.S. Puett, M.S. Tennessee; E.F. Shaw, Ph.D. Stanford; F.B. Thornburg, Jr., M.A. Florida.
Assistant Professor: P.G. Ashdown, Ph.D. Bowling Green.

Visiting:
2210 Writing for Mass Media (3) Principles and practice of writing for major types of mass communications media. Not available to majors in the College of Communications.
2215 Basic News Writing (4) Information gathering and writing techniques with deadline pressure. Observation, interviewing, speech reporting for print and broadcast mass media. 3 hrs and 1 lab. Prereq: Communications 1110 and typing proficiency of 35 wpm.
2220 Reporting (4) Methods of gathering and writing facts for mass media. Emphasis on news and news features. 3 hrs and 1 lab. Prereq: 2210.
2230 Editing for Mass Media (3) Copyreading methods and practice in editing types of copy for print and broadcast media. 2 hrs and 1 lab. Prereq: 2220.
3110 Communications History (3) Development of newspapers, magazines, and broadcasting in America. Biographies of major journalists.
3120 Writing Feature Articles (3) Instruction and practice in writing feature articles for newspapers, trade journals, and magazines. Market analysis and free-lance selling. Prereq: 2210 or consent of instructor.
3210 Advanced Reporting (3) Gathering and writing news in depth on current issues and concerns under deadline pressure. Use of VDT terminals. Prereq: 2230.
3220 News Editing and Display (3) Instruction and practice in making up newspapers and magazines. Advanced work in copyreading, rewriting, and headlining. Picture editing. 1 hr and 2 labs. Prereq: 2230.
3310 Graphic Arts in Journalism (3) Printing equipment and production methods. Typography, letterpress, offset, gravure, engraving, stereotyping, proofreading, copyrighting, and current developments in mechanical processes.
3410 Communications Law (3) Statutory law and judicial precedent affecting mass communications media. Libel, contempt of court, invasion of privacy, copyright. Broadcasting, advertising, and postal regulations.
3510-20-30 Practicum in Journalism, I, II, III (1, 1, 1) Supervised experience in newspaper and writing. Prereq: 2220.
3560 Investigative and Specialized Reporting (3) Investigative and interpretive reporting of complex or specialized subjects to place news in perspective or to clarify situations. Emphasis on writing for publication. Prereq: 2220.
3710 Public Relations (3) Theories and principles of public relations. Overview of PR as a management tool of business, government, institutions, and organizations.
3720 Public Relations: Advanced (3) Publicity organization, techniques and tools. Preparation of communications materials to gain support from target publics. Prereq: 3710.
3730 Public Relations Cases (3) Case studies and application of public relations principles to problems in business and industry, government, institutions, organizations, trades and professions. Prereq: 3720.
3810 Specialized Publications (3) Business and industrial publication, individual projects on newspapers and magazines in fields of agriculture, business and industry, engineering, home economics. Prereq: 3830 or consent of instructor.
3910 Basic Photography (3) Principles, policies, and procedures of using pictures as an editorial medium. Press and reflex cameras and flash photography. Darkroom techniques in developing, enlarging, printing. 1 hr and 2 labs. Prereq: Consent of instructor.
4130 Editorial Writing (3) Analysis of editorial policies, practices, pages. Writing of editorials, columns, paragraphs, and interpretative articles. Prereq: Senior standing.
4310 Reporting Public Affairs (3) Reporting news of courts, politics, government, finance, labor, and social agencies. 2 hrs and 1 lab. Prereq: 2230 and senior standing.
4410 Mass Media and Society (3) Role of communications media in society. Codes and ethical restraints on consumer research; development of censorship, propaganda, and freedom of the press. Social responsibilities of the practice of journalism.
4420 Newspaper Management (3) Daily and weekly business operations. Development in newspaper management.
4510-20-30 Practicum in Journalism, IV, V, VI (1, 1, 1) Supervised experience in news writing and editi-
ing. Prereq: Senior standing or consent of instructor.

4810 Journalism in the High School (3) Functions and methods of publications. Staff organization, writing and editing techniques, editorial problems, and business management.

4910 News and Feature Photography (3) Advanced principles and methods in black-and-white photography. Emphasis on news and feature photographs and picture stories. Prereq: 3910 or permission of instructor.

4950 International Communications (3) Communication of news and opinion among nations and under varying types of political and economic systems: world news organizations; the press as a factor in international affairs; barriers to the flow of information; comparison of world press systems.

4990 Problems in Research (3) Independent work course for seniors. Intensive study of some phase of the major field, investigative procedures, report writing.

GRADUATE

5210 Government and the Press (3)
5250 Public Opinion and Mass Media (3)
5510-20-30 Writing and Editing Projects (3, 3, 3)
5560 Magazine Article Writing (3)

5710 Studies in Public Relations Communications (3)

5810 Magazine Editing and Production (3)
5950 Communications and International Development (3)

5970 Independent Study (3)
Division of Continuing Education, Knoxville

Joseph P Goddard, Dean
William D. Barton, Associate Dean

The Division of Continuing Education at Knoxville extends the academic programs and services for all colleges and schools on campus to the people in the area served by the University of Tennessee, Knoxville. In addition, the division cooperates with all other campuses of The University of Tennessee in extending academic programs and services to all citizens of the state.

Conferences and Institutes

Director:

Assistant Director:

Coordinators:

The purpose of the continuing education conference program is to bring together under University auspices groups of participants and qualified resource people to share new information and ideas, to develop new insights, to cope with current problems, or to impart new work performance skills. Types of persons served are practically unlimited. This includes all disciplines: the professional, technical, managerial, and service individuals from the professions, industry, government, education, and commerce.

Conferences, Institutes, short courses and workshops from one day to two weeks or more in length are planned and administered by this department and the related academic departments in cooperation with business, industrial, and professional organizations.

Each program is specifically designed for the needs of the group being served and may be held on the University campus or at any other location where adequate facilities and sufficient interest exist.

ELDERLY AND DISABLED PERSONS

Recent statewide 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 of Tennessee, Knoxville at no charge on a audit, space available basis. Legal verification of either of these conditions is required for enrollment. Additional information may be obtained at the Department of Conferences and Institutes, 432 University Extension Building.

Workshops and Off-Campus Programs

Director:

Assistant Directors:
J.R. Rosamond, M.S. Tennessee; R.B. Tucker, M.S. Mississippi State.

This department conducts undergraduate and graduate courses in many locations away from the Knoxville campus. The courses are scheduled in response to requests and identifiable needs of adult part-time students who live some distance from the UT campus and who take part or all their courses at off-campus locations.

All course offerings and instructors are approved by the appropriate academic department heads and the credit awarded is resident credit. The majority of the colleges and their academic departments cooperate in the off-campus program.

Credit workshops are another phase of continuing education designed to meet the student’s changing needs. They are coordinated through the various academic units of the University and provide students the opportunity to participate in short periods of intensive study. As a result, students may earn college credit within a shorter time frame than the traditional quarter system.

Workshops also 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. In the past, workshops have been held throughout the state and in the United Kingdom.

Provisions for a program of student services are provided. These services encompass areas of registration, records and procedures for admission. The student adviser/counselor is available upon request for meeting with students at on-campus locations. Beginning fall 1978, all UTK course offerings in Oak Ridge will be under the administration of this department. Inquiries and/or course requests may be directed here.

University Evening School (Knoxville and Oak Ridge)

Director:

Associate Director:
J.C. Sekula, Ph.D. Tennessee.

Assistant Directors:

Assistant Professors:

Instructor:
A.J. MacCabe, M.S. SUNY at Albany.

The University Evening School with the cooperation of academic colleges and departments administers credit classes and supports activities for those students attending in the late afternoon and evening. Programs and services are offered enabling working adults to pursue their educational interests and goals.
Undergraduate Degree Programs
The following degrees are available for evening students:
- College of Business Administration
  Bachelor of Science in Business Administration with a major in Accounting, General Business, Economics, Management, or Office Administration.
- College of Engineering
  Bachelor of Science in Engineering Science;
- College of Liberal Arts
  Bachelor of Arts with a major in Anthropology, Economics, History, Political Science, Psychology, or Sociology.

Graduate Degree Programs
Some departments within the Colleges of Business Administration, Education, and Engineering offer all courses required for an advanced degree during the evening. For a specific major, consult the appropriate department. In the College of Business Administration, all courses required for the MBA degree with a concentration in management are offered during the evening.

Nursing Education Program
The Nursing Education Program is conducted through contractual agreement with three area Knoxville hospitals. The diploma program is run through each hospital’s independent School of Nursing. Academic courses are provided by the University Evening School in support of this program.

Student Services
A comprehensive program of services is provided by the Evening School for the adult part-time student.

REGISTRATION
Quarterly registration by mail or on campus is offered as a convenience for former Evening School students.

ADVISING
An advising-counseling program is available for the benefit of all evening students who need assistance with academic and/or personal matters. This program can accommodate students during regular daytime hours (8:30-5:30) and in the evenings by appointment. In addition, advisers from the various colleges are on hand for academic consultation during evening preregistration days. A full-time veteran adviser assists evening students, who receive educational benefits under the G.I. Bill, with their academic planning.

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. In addition, interested students may obtain applications for the Basic Educational Opportunity Grant Program in the Evening School Office.

Elderly and Disabled Persons
Recent statewide 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 are totally disabled and who desire to receive UT credit for their courses, may pay a reduced charge of $5 per credit hour to a maximum of $50 for a full-time load. Registration for day and evening classes is handled by the Evening School.

For additional information concerning any of these programs or services please contact the University Evening School, 451 Communications & University Extension Building.

Non-Credit Programs
Director:

Assistant Director:

Coordinator:
K.J. Reagan, M.S. Tennessee.

The department conducts and coordinates various non-credit courses offered on campus and off campus. It administers non-credit programs offered by the department and other courses offered in cooperation with other academic departments and service departments of the University. These non-credit courses provide opportunities for college remedial training, in-service training, upgrading of physical and some technical skills, recurrency training, and leisure type educational courses for the Knoxville and surrounding community.

Certain non-credit courses are approved for Veterans’ training. For specific information, contact the Department of Non-Credit Programs.

Continuing Education Units (CEU’s) are awarded to students satisfactorily completing courses described in the non-credit quarterly class schedule. A Continuing Education Unit 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 Division of Continuing Education, Department of Non-Credit Programs. A transcript of all CEU’s earned at The University of Tennessee may be obtained upon written request.

ELDERLY AND DISABLED PERSONS
Recent statewide legislation gives Tennessee citizens who are 60 years of age or older, or those who are totally disabled, the opportunity to attend courses at UTK at no charge on an audit, space available basis. Legal verification of either of these conditions is required for enrollment. Additional information may be obtained at 2016 Lake Avenue.
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 programs at The University of Tennessee are now coordinated within its seven departments and its School of Health, Physical Education, and Recreation.

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

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

The teacher preparation programs represent utilization of University-wide resources and cooperation of all appropriate units. Certain requirements are of basic importance: a broad cultural background in the arts and sciences (general education), mastery of professional knowledge and skills, and thorough preparation in specific teaching fields. Through a carefully planned program of combined academic and direct experiences, the prospective teacher acquires a depth and breadth of knowledge and understanding superior to that of the typical college graduate—superior in cultural and citizenship appreciation as well as in professional and scholarly accomplishment.

The Claxton Education Building contains many modern and functional facilities for the professional training of teachers. Classrooms, laboratories, seminar rooms, faculty and administrative offices, the instructional materials center, the Bureau of Educational Research and Service, the School Planning Laboratory, and facilities for special activities such as observation and experimentation are located in this air-conditioned building.

**Special Services**

**Bureau of Educational Research and Service.** Four major types of activities—research, development, educational services, and publications—are channeled through the Bureau of Educational Research and Service (BERS), located in Claxton Education Building. The research activities involve developing research proposals, conducting research, and assisting others in development of research proposals in the College of Education. Developmental activities relate to change efforts in curricular content and instructional methodology. Educational services include a wide list of activities such as inservice educational programs, consultant services, educational services and administrative training programs. Official publications of the College of Education are developed through the bureau. A limited number of graduate student assistantships are available. The Educational Opportunities Planning Center, the Research Coordinating Unit, and the School Planning Laboratory are integral parts of the Bureau of Educational Research and Service.

**EDUCATIONAL OPPORTUNITIES PLANNING CENTER**

The Educational Opportunities Planning Center (EOPC) works with school districts in the Tennessee-Kentucky area to help meet their desegregation-related needs by assisting with needs assessment and by helping develop plans to meet the needs. A new component was added during the 1975-76 year to deal with sex discrimination in the school systems of Tennessee and Kentucky. Staff follow through with inservice training of local district personnel, with such training directed toward solutions of curricular, human relations, and other types of problems created or compounded by school desegregation and sex discrimination. On-site evaluation of locally installed practices and continuing cooperative evaluation of the progress of local programs are additional major efforts. This program is funded by the U.S. Office of Education.

**SCHOOL PLANNING LABORATORY**

The School Planning Laboratory (SPL), located in Claxton Education Building, assists school systems and colleges in the state and in the southeastern region with problems arising from renovation of existing facilities and planning of new facilities. Course work peculiar to the field of school planning is offered through the Department of Educational Administration and Supervision. Graduate student assistantships are available each year through the Laboratory.

**The Reading Center.** A commitment to the concept of teaching, research, and service as the role of the University involves the Reading Center in a variety of activities. An extensive program of diagnostic and remedial reading services to children is closely tied to graduate course work and practicums in reading.
methodology. Effective reading and study classes are offered for the benefit of the University student body. Service functions of the Center include extensive in-service and consultant services for public-school reading program improvement. The Center also maintains a remedial reading materials center and assists in the coordination of an ERIC/CRIER Regional Information Service Center reading. For further information write the Director, Reading Center, 1912 Terrace Avenue, Knoxville, Tennessee 37916.

Teacher Placement Service. The College of Education, cooperating with the University Placement Service, assists qualified students and alumni in securing positions. School and college administrators are cordially invited to make full use of these services in their efforts to employ competent personnel.

General Information

Admission to the College
For transfer into the College of Education after completion of the freshman year, a minimum grade average of 2.0 (C) is required.

Application. Permission for more than 19 hours in a quarter must be obtained from the Associate Dean for Undergraduate Programs. A normal course load in the college is 16-18 hours.

Admission to Teacher Education
All students are required to apply for Admission to Teacher Education after earning a minimum of 60 quarter hours or in their first quarter if a transfer student with more than 60 quarter hours. Admission to Teacher Education will be a prerequisite for enrollment in any upper-division College of Education course that is required for a professional curriculum. The criteria include:

1. Speech and Hearing. Completion of a speech and hearing exam.
2. G.P.A. Students must have a 2.2 cumulative grade point average and a 2.2 UTk average in order to be admitted to Teacher Education. In addition, students must have a 2.2 cumulative grade point average and a 2.2 UTk average at the end of the quarter immediately preceding the student teaching quarter.
3. Social-Emotional Evaluation. Students will be required to undergo social-emotional evaluation. Students whose scores on selected instruments are extreme variations from established norms for the instrument will be required to undergo further evaluation. Data resulting from the social evaluation will be reviewed by the Admissions and Retention Committee as one factor to be used in deciding the acceptability of the student in the Teacher Education Program.
4. Student Conduct. At the point of a student’s application for admission to Teacher Education, any record established by the student in the Office of Student Conduct will be reviewed by the Admissions and Retention Committee. Additional information may be sought when deemed appropriate. In addition, this review will be repeated the quarter prior to student teaching. Primary consideration will be given to the implications of misconduct for persons who will be working as teachers of youngsters.
5. Field Experience. Students will be required to have a field experience prior to being admitted to Teacher Education. Applications should be filed in 212 Claxton Education Building.

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

Admission to Student Teaching
Application for student teaching must be filed no later than January 1 of the academic year preceding the actual experience. For example, if a student plans to student teach during the 1980-81 academic year application must be made by January 1, 1980. Applications for student teaching may be completed at approximately five times during each quarter. A schedule of the application meetings is available in the Office of the Director of Student Teaching, 212 Claxton Education Building.

Students majoring in special education—speech and hearing, and in special education—hearing impaired, are required to make application for clinical practice or student teaching in the Department of Special Education and Rehabilitation and in the Office of the Director of Student Teaching. Before admission to the student teaching quarter, the student must have fulfilled the following requirements:
1. Full admission to the Teacher Education Program no later than the quarter preceding student teaching (i.e., all conditions relative to admission satisfied).
2. Completion of the professional core courses (Education 3010, 3020, 3030 and Educational Psychology 2430 or 3810).
3. Completion of at least 90 percent of course work in the endorsement area(s).
4. Completion of the special methods courses at The University of Tennessee.
5. Completion of the Student Teaching Seminar and the September experience (in credit).
6. Senior standing and a minimum grade point average of 2.2 on work completed at The University of Tennessee.

The 15-hour student teaching experience is evaluated on a satisfactory-no credit basis and the hours are included in the University policy requiring a 2.0 in the last 45 hours work.

The most important criterion in placing student teachers in the public schools is the value of the experience for preparing for teaching. The University cannot guarantee the geographic locale desired by the student though effort will be made to follow the student’s wishes. Student teaching centers are maintained in East Tennessee communities, some of which are at a considerable distance from Knoxville. Married students will be placed as near their homes as possible in order to preserve family life.

Substitutions
It is sometimes necessary and advisable for students to substitute other courses for those required in a particular curriculum. This is particularly true of students who transfer to The University of Tennessee College of Education from another college or university. The general test of whether a substitution would be appropriate is “does the course you wish to substitute meet the spirit of the course requirement?” That is “is the content similar or perhaps more appropriate to your needs?”

To initiate a substitution request the student should visit with the adviser first. If they agree that the substitution is an appropriate one, the substitution request form should be forwarded to the Office of the Associate Dean for Undergraduate Programs, 212 Claxton Education Building. Approved petitions are forwarded to the Dean of Admissions for further approval, and for filing with the Undergraduate Council.

Recommendation for Certification
The application for a professional teacher’s certificate should be completed early in the final quarter before graduation. Application forms may be obtained in the Registrar’s Office, 215 Student Services Building, and 212 Claxton Education Building.

Tennessee state regulations stipulate that the applicant for a professional certificate must be recommended by the teacher-training institution. The dean of the College of Education is the official designated to recommend the University of Tennessee graduates for teacher certification. To receive this recommendation, the applicant must have fulfilled the following requirements:
1. A minimum cumulative grade point average of 2.0.
2. Satisfactory performance of the student teaching experience.
3. A minimum grade point average of 2.0 in the teaching field(s).
4. Completion of a methods course in each area of endorsement.
5. Fulfillment of all special recommendations of the Committee on Standards and Admissions.

Graduate Programs
The College of Education, through the Graduate School, offers programs leading to the Master of Science degree, the Master of Education degree, the Master of Arts in College Teaching degree, the Master of Public Health degree, the Specialist in Education (advanced graduate) degree, the Doctor of Education, and the Doctor of Philosophy degrees. For
Undergraduate Curricula

The college offers courses of study leading to the Bachelor of Science in Education and to eligibility for teacher certification in Tennessee and in those states which give reciprocity privileges to graduates of institutions accredited by the National Council for Accreditation of Teacher Education (NCATE).

A core of studies provides the foundation for specialization in all teacher education curricula. In addition, approved concentrations must be completed in subject fields specifically related to the public school curriculum. A choice is to be made among programs leading to recommendation for certification at one of three levels: elementary (kindergarten-9), secondary (grades 7-12), or special subjects in grades K-12.

Courses in library science are available to students who are interested in beginning positions in any library or in preparation for further graduate study in professional librarianship. The minimum requirements for full-time librarianship in any size school in Tennessee can be met through completion of the basic library service courses (3510, 3520, 3530, 4140, 4150, 4270, 4330, 4750). Endorsement as a librarian requires 27 quarter hours in library science. At the undergraduate level, only a minor in library science is available. Students in the college who will select an appropriate curriculum from those outlined under the undergraduate curriculum section. Students interested in this program should consult with a member of the faculty of the Graduate School of Library and Information Science.

Students should work closely with faculty advisers in planning programs of study. The chosen curriculum must be followed as outlined to assure graduation and certification, and any proposed substitution for a required course should be filed for approval before the end of the junior year.

Satisfactory/No Credit Courses

For the curricula listed under Roman numerals I, II, and III only, a student may include a maximum of 30 hours in non-directed electives taken on a Satisfactory/No Credit basis in the total hours required for graduation. S/N/C may not be used in required courses or controlled electives, except where the course is offered as a S/N/C basis (such as student teaching and field experiences). An area of concentration will be considered as non-directed electives except where specific courses or controlled electives are required.

NOTE: Students are advised to consult the University's degree requirements as stated in the front section of this catalog as well as the requirements for the college or department.

I. Curricula for Elementary Teachers

A. Kindergarten through Grade 8

**GENERAL EDUCATION**

- 89 hours

**Communications** (12 hours)

English 1010-20 and 1031 or 1032 or 1033 (English 1015 may be required of some students); Speech 2021 or 2311 or any speech elective.

**Health and Physical Education** (18 hours)

P.E. 3450 (3), School Health 3610 (3), Psychology 2500 (4), P.E. and health electives (6 hours) must include minimum of 3 hours in each area.

**Humanities** (12 hours)

Literature 8 hours, the remaining four hours must be chosen from foreign language (above introductory level), philosophy, religious studies, Art 1815 or 1825, or Music 1210 or 1220.

**Mathematics** (9 hours)

Mathematics 2110, 2120, 2130.

**Natural Science** (20 hours)

8 or 12 hours in biological science. Recommended series are Biology 1210, 1220 (1230 or Botany 1110, 1120), 8 or 12 hours in physical science. Recommended series are Physics 1410, 1420, (1430) or Geology 1510-20 or Astronomy 2110, 2120, (2130) or Chemistry 1110, 1120, 1130.

**Social Studies** (12 hours)

History 4 hours—it is recommended that the course be taken at the sophomore level. Electives (14-16 hours) from anthropology, economics, geography, political science, and sociology. Minimum of 3 areas are required.

**CORE PROFESSIONAL COURSES**

- 9 hours

**ELEMENTARY EDUCATION COURSES**

- 36 hours


**SPECIALIZED COURSES**

- 21 hours

Educational Psychology 2430; Art Education 2100, 2110, Music Education 2100, 3110; Educ. C & I 3510; Special Education 3333.

**AREAS OF CONCENTRATION**

- 15-16 hours

One or more areas of specialization are to be chosen from the following:

- Art Requirements plus 15-16 hours from art, Cdh, art education.
- Black Studies Courses from at least 3 different fields must be included. See Black Studies for specific course possibilities.
- Child Studies Requirements plus 15-16 hours from child development, psychology, educational psychology.
- Electives

**TOTAL MINIMUM REQUIRED**

- 191 hours

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*Requires admission to Teacher Education Program.

B. Nursery School through Grade 3

**GENERAL EDUCATION**

- 83 hours

**Communications** (12 hours)

English 1010-20 and 1031 or 1032 or 1033; Speech 2021 or 2311.

**Humanities** (12 hours)

Literature (4); Music 1210 or 1220 or Art 1815 or 1825; philosophy or religious studies (4).

**Natural Science**

Biological science (in series or combination) (8); physical science (in series or combination) (8).

**Mathematics**

Mathematics 2110-20-30.

**Social Sciences** (18 hours)

History (4); Early Family and Family Studies 4610; Economics 2110; Anthropology, 2530 or 3410 or Human Services or Sociology 4320 or 4510. Electives (from anthropology, economics, geography, human services, political science, sociology).

**Interdisciplinary Studies in Home Economics** (16 hours)

H.E. 1510, 1520, 2510, 3510.

**SPECIALIZED COURSES**

- 34 hours

P.E. 3450, 3660; Pub. Health 3210; health elective: Art Ed 2110, 2110; Music Ed 2100, 3110; Educ. C & I 4303; CFS 3120; LIS 3510.

**FOUNDATIONS COURSES**

- 15 hours

CFS 1500, 3210; Select one: CFS, 3200, 4320 or 4350; Select two: Educ. C & I 3010, 3020, 3030.

**TEACHING AND THEORY COURSES**

- 54 hours


**ELECTIVES**

- 5 hours

**TOTAL MINIMUM REQUIRED**

- 191 hours

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*Total three hours required.
II. Joint Elementary-Mathematics Education Certification
(Mathematics + B.S. Degree)

GENERAL EDUCATION .......................... 90 hours

Communications (12 hours)
English 1019 (English 1019 may be required of some students); Speech 2021 or 2311.

Humanities (12 hours)
Eight hours literature and four hours electives.

Health and Physical Education (19 hours)
Psychology 2500; Educ. Psychology 2420; Physical Education 3450; physical education electives (3 hours); School Health 3610. Select one of the following as a prerequisite to School Health 3610: Public Health 1110, School Health 3000, 3210, 3410, 3510.

Natural Sciences (20 hours)
Recommended series or combinations:
A. Biological science (8-12 hours)
Biology 2110-11-20 or Botany 1110-20
B. Physical Science (8-12 hours)
Physics 1410-20-30 or Geology 1510-20 or Astronomy 2110-20-30 or Chemistry 1110-20-30
C. Mathematics (9 hours)
Math 2110-20-30, taken in sequence.

Social Sciences (18 hours)
Four hours in history; 14 hours electives from a minimum of three areas of social science other than history.

CORE PROFESSIONAL EDUCATION .............. 50 hours
A. Educational Curriculum & Instruction (9 hours)
Educ. C 3010*, 3020, 3030*
B. Education Methods (26 hours)
C. Education C 4910*
D. Education C 4910*

SPECIALIZED COURSES .......................... 12 hours

AREA OF CONCENTRATION ....................... 36 hours
1. Math 1040, 2600, 2540-50-60.
2. At least 12 hours in courses numbered 3050 or above with at least one course selected from each of the following categories:
   (a) Algebra: Math 3090, 3720, 4060, 4120, 4150.
   (b) Analysis: Math 3100, 3110, 4510, 4610.
   (c) Geometry: Math 3310, 3320, 3330.
   (d) Probability: Math 3050, 3060, 4650, 4750.

ELECTIVES ...................................... 10 hours

TOTAL MINIMUM REQUIRED ............... 198 hours

Programs Available

Mathematics and Related Sciences (72 hours)
(1) Mathematics 36 hours—must include at least one one-year sequence in calculus or analytic geometry and calculus and at least 12 hours in courses numbered 3050 or above at least one course in algebra and one in geometry.
(2) Related Sciences 12 hours in physics and 12 hours in each of the following subjects: mathematics, astronomy, biology, botany, chemistry, geology, microbiology.
Endorsements: Mathematics, General Science.

Mathematics and Computer Sciences (72 hours)
(1) Mathematics 36 hours—must include at least one one-year sequence in calculus or analytic geometry and calculus, and at least 12 hours in courses numbered 3050 or above at least one course in algebra and one in geometry.
(2) Computer Science 12 hours in computer science and 12 hours in physics.
Endorsement: Mathematics.

Endorsement: Mathematics

III. Curricula for Secondary Education (7-12)

GENERAL EDUCATION ......................... 70 hours

Communications (13 hours)
10 English 1010 and 1031 or 1032 or 1033 (English 1019 may be required of some students); and Speech 2311.

Health and Physical Education (9 hours)
Including at least 3 hours of school health or public health or nutrition. (P.E. must be represented.)

Humanities (16 hours)
Any 4 hours from English 2510-20-30-40-60-70-80-90; plus 4 hours of electives from anthropology, art, English literature, Library and Information Science 3510-30, foreign language (beyond introductory level), history, psychology 3810, music, philosophy, or religious studies. (NOTE: At least three fields must be represented.)

Mathematics (12 hours)
Natural Science (12 hours)
A biological science and a physical science, or a combination of the two.
Psychology (4 hours) Psychology 2500.

Social Studies (12 hours)
Two fields should be represented from anthropology, economics, geography, history, human services, political science, and sociology.

CORE PROFESSIONAL EDUCATION ............. 9 hours
Educ. C 3010*, 3020, 3030*

SPECIALIZED PROFESSIONAL EDUCATION .......... 36 hours
Mathematics & Related Sciences: Educational Psychology 3810, 6 hours of appropriate methods courses; Educ. C 3521-22-23, 4710-20*, and 6 hours of electives selected from the College of Education. (NOTE: An appropriate special methods course must be taken in each subject and/or area in which endorsement is sought.)

English: Educ. C & I 3657 and 3658
Foreign Language: Educ. C & I 3630 and 3656
Mathematics: Educ. C & I 3751 and 3752
Science: Educ. C & I 3654 and 4654
Social Studies**: Educ. C & I 3653 and additional methods course

TEACHING SUBJECT AREAS AND ELECTIVES .................. 71 hours
See outline of the programs below.

TOTAL MINIMUM REQUIRED .......... 186 hours

PROGRAMS AVAILABLE

Program majors leading to graduation and certification in high school teaching range from the broad fields, comprehensive major to the subject major and minor combination programs.

*Requires admission to Teacher Education Program.
**Required for Student Teaching.

D. Psychology Education

1. A concentration and endorsement in psychology shall require a minimum of 30 hours, 12 hours upper division distributed as follows:
   Core 16 hours
   Psychology 2500 4
   Psychology 3120 4
   Psychology 3150 4
   Psychology 3210 4
   Electives—14 hours selected from:
   Psychology 3220, 3250, 3420, 3430, 3450, 3460, 4500, 4610, 4610, 4900; Psychology or Ed. Psych. 4640; Ed. Psych. 4110, 4110, 4130, 4800, 4860.

2. Two minors (18-27 hours for a total of 45 quarter hours each with a minimum of 30 hours upper division.

At least one of the two minor areas must meet Tennessee minimum endorsement requirements for the subject area.

E. Science Education

1. Area Majors in Science
   a. Biological Science (72 hours minimum)
      *Biology 1210-20-30 or Botany 1110-20-40 (12 hours)
      Biology 3110-20-30 (12 hours), Microbiology 3810, Chemistry (excluding 1410 series) (12 hours), Science electives—32 hours minimum, approved courses selected from one or more of the following: biological sciences: biochemistry, botany, microbiology, zoology; physical sciences: chemistry. Minimum requirement in biological science consists of 56 hours (12 hours chemistry required, excluding 1410 series).
   Endorsements: Biology (Life Science) and General Science.

2. Earth and Environmental Sciences (72 hours minimum)
   Includes 12 hours biological science required, and 14 hours science electives selected from astronomy, chemistry (excluding 1410 series), geography, geology, and physics.
   Chemistry (16 hours)
   Physics (14 hours)
   Geography (physical) (4 hours)
   Geography (meteorology or climatology) (4 hours)
c. Natural Science (72 hours minimum)
   Basic requirement of 12 hours in each of four of the following subjects:
   Biology (12-13 hours) or Botany 110-20-40.
   Chemistry series (excluding 1410 series).
   Geology series (excluding Geology 1000).
   Physics (excluding 1410 series).
   Mathematics (excluding 1020, 2020 and 2110-
   20-30). Credit for only 12 hours math accepted in the 2000 series.
   Approved science electives—24 hours minimum, including a total of six quarters of course work in one subject area other than math.
   Biology is considered as one subject for high school endorsement.
   Endorsements: General Science* (Possible en-
   dorsements: Biology, Chemistry, and Physics)
2. Subject Majors in Science
   The only single major subjects in science leading to teacher certification are chemistry and physics. Majors 45 quarter hours; minors 27 quarter hours.
   Endorsements: Major Subject

*Only one freshman-level biological science series permitted.
§Plant and animal science courses required.
$Certification in any single area.

F. Social Science Education Program
   Broad fields Social Studies (Major 72 hours) Certification includes economics, geography, history, political science.
   a. 28 quarter hours in history, including 1510-20 and 2510-20, and 12 hours in world and/or Ancient world.
   b. 8 quarter hours in each of the following: geography, political science, and sociology.
   c. 4 quarter hours in political science, and:
   d. 9 quarter hours in economics, including 2110-20 and an elective.
   e. 7 or additional quarter hours in the above-listed or related fields.
   Program II
   Special subject major (45 hours plus 27 hours for a minor).
   Minor—minor is defined as 27 quarter hours in a single subject area, i.e., biology, history, French, psychology, speech, etc. A minor does not meet certification requirements in all cases.

IV. Art and Music Education
   A. Art Education
      GENERAL EDUCATION
      68-70 hours core units
      English 1010-20 and 1031 or 1032 or 1033; and 3-4 hours in speech.
   Health and Physical Education (9 hours)
   Activities courses in physical education plus School Health 3510.
   Humanities (15-16 hours)
   Art History 1815 and 1825, two literature courses, and one elective from anthropology, philo-
   sophy, foreign language above 1000 level, upper-
   division history, library science, religion or music.
   Mathematics (4 hours)
   Any twelve hours from the biological and/or physical sciences.
   Psychology (4 hours)
   Psychology 2500.
   Social Studies (12 hours)
   Any twelve hours from at least two areas.
   CORE PROFESSIONAL
   9 hours
   Ed. C & I 1301*, 3020, 3030*
   SPECIALIZED PROFESSIONAL
   21 hours
   Student teaching: Ed. C & I 4710*, 4720*; Ed.
   Psych. 2430 or 3810; and an elective in the College of Education.
   TEACHING AREAS AND ELECTIVES
   84 hours
   A. Major (60 hours)
      Art Educ. 2100, 2120, 3290, 3210, 4120, 4130,
      4150, 4160.

   B. Music Education
      GENERAL EDUCATION
      66-68 hours
      Communications (12-13 hours)
      English 1010-20 and 1031 or 1032 or 1033; and 3-4 hours in speech.
      Health and Physical Education (9 hours)
      Activities courses in physical education plus School Health 3510.
      Humanities (14 hours)
      Music 2310, literature course, and one elective
      from art, anthropology, literature, foreign
      language beyond introductory level, upper-
      division history, philosophy, or religious studies.
      Mathematics (4 hours)
      Natural Science (11-12 hours)
      Three courses from the biological and/or
      physical sciences, to include Physics 1810.
      Psychology (4 hours)
      Psychology 2500.
      Social Studies (12 hours)
      Any 12 hours, to include at least two areas.
   CORE PROFESSIONAL EDUCATION
   9 hours
   Ed. C & I 3010*, 3020, 3030*
   SPECIALIZED PROFESSIONAL
   21 hours
   2430 or 3810; and a senior elective in the College of Education.
   TEACHING AREAS AND ELECTIVES
   85-110 hours
   Concentration in Vocal Music (Voice/Principal)
   25 quarter hours in Music Education: 1010-20; 2110-
   2120; 2211-23; 2311-23; 2340; voice 22 hours;
   required ensemble 11 hours plus piano proficiency.
   Concentration in Vocal Music (Piano or Organ Principal)
   25 quarter hours in Music Education: 1010-20; 2110-
   2120; 2211-23; 2311-23; 2340; piano or organ 22
   hours; voice 6 hours, required ensemble 11
   hours.
   Concentration in Elementary Music Education
   (Voice/Principal)
   31 quarter hours in Music Education: 1010-20; 2110-
   2120; 2211-23; 2311-23; 2340; piano or organ 22
   hours; voice 6 hours; required ensemble 11
   hours.
   Concentration in Elementary Music Education
   (Piano or Organ Principal)
   31 quarter hours of Music Education: 1010-20; 2110-
   2120; 2211-23; 2311-23; 2340; piano or organ 22
   hours; voice 6 hours; required ensemble 11
   hours.
   Concentration in Instrumental Music Education
   35 quarter hours in Music Education: 1010-20; 2110-
   2120; 2211-23; 2311-23; 2340; 3112; 3122 or
   4124; principal instrument 22 hours; secondary
   instrument 6 hours; piano proficiency; required
   ensemble 11 hours.
   c. Music Education 4460 is required for all students whose principal instrument is wind or percussion.

   TOTAL MINIMUM REQUIRED: 181-208 hours

   GENERAL REGULATIONS FOR ALL MUSIC EDUCATION STUDENTS
   A. Required participation, with credit or as a registered auditor, in a major instrumental or vocal organization each quarter in residence (on-campus) as a music education major, as approved by the student's advisor and the directors of the organizations concerned. Students preparing to be band directors are expected to enroll in Marching Band unless officially excused.
   Instrumental Major. Concert Band; University Marching Band; or University Orchestra.
   Vocal Major. Concert Choir; University Glee Clubs.
   Elementary Music Education Major. Same as Vocal Major.
   B. Transfer students must take proficiency examinations in applied music, music theory, sight singing and dictation prior to registration in music education curricula.

   *Requires admission to Teacher Education Program.

V. Health, Physical Education, Recreation, and Safety
   A. Concentration in Elementary Physical Education (1-9)
      GENERAL EDUCATION
      90 hours
      Communications (12 hours)
      English 1010-20 and 1031 or 1032 or 1033;
      Speech 2021 or 2311.
      Humanities (16 hours)
      English 2510 or 2520 plus 12 hours of electives.
      Social Studies (16 hours)
      Sociology 1510 plus 12 hours of electives.
      Natural Science (24 hours)
      Chemistry 1510-20, Physics 1450, and Zoology
      2920-30 and 4940.
      Mathematics (4 hours)
      Psychology (4 hours)
      Psychology 2500.
      Health and Physical Education (14 hours)
      School Health 3000 and 3420; physical education
      activities (8 hours) including P.E. 2012, 2022,
      1022, 3180.

   CORE PROFESSIONAL EDUCATION
   9 hours
   Ed. C & I 3010*, 3020, 3030*
   SPECIALIZED PROFESSIONAL
   27 hours
   Ed. Psych. 2430, Educ. C & I 4810-20*, 3150,
   4750; Phys. Ed. 3635.
   TEACHING AREAS AND ELECTIVES
   70 hours
   Elementary Physical Education (46 hours)
   3000, 3150, 3510, 3520, 3560, 3570, 3660,
   3670, 3680, 3320, 4100, 4130, 4340, 4440,
   and 4 hours of P.E. activity electives.
   Cognate Course and Electives (24 hours)
   CFS 3210 and 21 hours to be used for endorse-
   ment, minor, or free electives.

   TOTAL MINIMUM REQUIRED: 196 hours

   *Requires admission to Teacher Education Program.

B. Minor in Elementary Physical Education
   (Open only to students with a concentration in secondary physical education)
   English 1010-20 and 1031 or 1032 or 1033; speech
   selected from P.E. 1510-20 (sug-
   gested); Physics 1450; Zoology 2920-30 and 4940;
   mathematics elective (3); School Health 3120. Hu-
   manities electives (16 hours) selected from: En-
   glish language; anthropology; art; foreign language;
music; philosophy; religion; dance appreciation; crafts; interior design and housing. Social studies electives (20 hours) selected from: history; anthropology; sociology; geography; political science; sociology; geology; psychology. Psychology 2500. Physical education activities (12 hours); P.E. 1020, 1021, 1022, 1023, 1024, 1025.

PROFESSIONAL EDUCATION ............ 32 hours
Education C & I 3010-20-30; Educ. Psych. 3810; Educ. C & I 4720-10; education elective (3 hours); Physical Education 2500 (practicum, field experience—2 hours).

SPECIALIZED PROFESSIONAL EDUCATION ............ 48 hours
P.E. 1000; 3210; 4110; 3230; 4120; 4230; 3220 or 3170; 4100; 4440 or 4450; 3300; 4470 or 3010; 3180; 3240; and 13 hours electives from any upper-division P.E. course.

ELECTIVES ............ 20 hours
Hours to be used for minor, endorsement, or electives (None of the 20 hours may be taken in lower-division physical education.)

TOTAL MINIMUM REQUIRED ............ 196 hours

*D requires admission to Teacher Education Program.

D. Minor in Secondary Physical Education (27 hours)
(Open only to students with a concentration in elementary physical education.)
P.E. 4120; 4140; 4230; 3210; 3170 or 4310; 4410 or 3100; 3260; 1032; 1032; P.E. electives (2 hours).

E. Minor in Dance (27 hours)
P.E. 2040-50-60; 3010; 3020 or 3030; 3060; 3060; 3070; 3090; 3151; 4010; 4060; 4330 or 4340-50; 4550.

F. Minor in Coaching (28-31 hours)
Zoology 2920-30 or 13080; Zoology 4940, Physical Education 3320, 3250, 3910, 3000, 4160. Two courses in the area of coaching to be chosen from the following: Physical Education 3110, 3120, 3210, 4260.

G. Concentration in Recreation GENERAL EDUCATION .................. 98 hours
Natural Sciences (16 hours minimum) 4 hours selected from: chemistry, physics, geology, astronomy, and Geography 1810, 1820, 1830, 1840; 4 hours selected from: biology or botany, zoology, the areas of anatomy or physiology. At least six additional hours selected from any or a combination of the above.
Social Sciences (16 hours minimum) 1510 or 1530, at least eight additional hours selected from Sociology 1520, 3130, 3410, 3420, 3690, 4390, 4350, 4560, or Rural Sociology 3420 or Human Services 2690, 4900, 3300 or Political Science 2530, 2020, 2510-20, 3656-66; 3710-20, Economics 2110-20, 2061, 3220, 3240.
Behavioral Sciences (16 hours minimum) 12 hours selected from: Psychology 2500, 2540, 3120, 3560, 3850, 3810, 3130, 4120, 4320, 4520, or CJS 2110, 2120, 3260, 4260, 4610, 4810.
Communications (16 hours minimum) English 1010-20 and 1032; Speech 2311 and at least 5 additional hours selected from Speech 2351, 3231, 4251, Communications 1110, Journalism 2210, 2370, Educ. C & I 4750.
Health and Safety (3 hours minimum) Health Education 3210, Public Health 3210 or Safety 3520.
Humanities (16 hours minimum) 1510, at least 4 hours selected from English 2000 level and above; at least 3 hours selected from history; at least 9 additional hours selected from English 2000 level and above, History 1510-20.

H. Major in Public Health Education
GENERAL EDUCATION .................. 87 hours
Communications (13 hours) English 1010-20 and 1032; Speech 2311.
Health and Physical Education (11 hours) Public Health 3000.
Humanities (16 hours) Chemistry or physics sequence (4, 4, 4), Biology 1210-20 or Zoology 2920-30.
Psychology (4 hours) Psychology 2500.
Social Sciences (19 hours) Economics 2110 or Political Science 2510 or 2520.

I. Major in School Health Education
GENERAL EDUCATION .................. 87 hours
Communications (13 hours) English 1010-20 and 1032; Speech 2311.
Health and Physical Education (11 hours) School Health 3000, School Health 3210.
Humanities (16 hours) Chemistry or physics sequence (4, 4, 4), Biology 1210-20 or Zoology 2920-30.
Psychology (4 hours) Psychology 2500.
Social Sciences (19 hours) Economics 2110 or Political Science 2510 or 2520.

J. Minor in Driver and Traffic Safety Education (28 hours) 17 hours
Safety 3520, 4140, 4420; Public Health 3210.

K. Minor in School Health Education (30 hours) 11 hours
School Health 3000, 3210, 3410, 3650, 3420; Safety 3520; Public Health 3310, 3410, 4410; Nutrition 1230 or Public Health 4420 or School Health 3620.

TOTAL MINIMUM REQUIRED ............ 190 hours

*Requires admission to Teacher Education Program.
VI. Special Education*

A. Concentration in General Special Education

GENERAL EDUCATION..................................77 hours

Communications (12 hours)
- English 1010-20 or 1031 or 1032 or 1033;
- Communication 2121 or 2131 or any speech elective.

Health and Physical Education (18 hours)
- P.E. 3450, School Health 3510, P.E. 4110, 3430,
- Psychology 2500, P.E. activities electives (4 hours).

Humanities (12 hours)
- Literature (4 hours); electives from anthropology,
  art, literature, library and information science,
  upper-division history, music, philosophy, religious
  studies, or foreign language above the introductory
  level (6 hours).

Mathematics (3 hours)
- Elective (Math 2110 recommended).

Natural Sciences (16 hours)
- Biological science (12 hours); Physical science
  (4 hours).

Social Studies (16 hours)
- History 2510, 2520 and electives from anthropology,
  art, literature, library and information science,
  upper-division history, music, philosophy, religious
  studies, or foreign language above the introductory
  level (6 hours).

CORE PROFESSIONAL EDUCATION...........6 hours
Educ. C & I 3101* and 3301*.

SPECIALIZED PROFESSIONAL EDUCATION...42 hours

Language Arts (12 hours)
- Educ. C & I 3260, 3280, 3281 and three elective
  hours.

Mathematics Methods (3 hours)

Psychology or Educational Psychology (9 hours)
- Ed Psych 2430 or 3810 and six elective
  hours.

Child Development (9 hours)
- Nine elective hours.

Student Teaching in Elementary Schools (9 hours)
- Educ. C & I 4610* (regular classroom with non-
  handicapped children).

SPECIAL EDUCATION COURSES................39 hours
Special Education 3333, 3520, 4110, 4120, 4130,
4150, 4351, 4361, 4440, 4610, 4740, 5260, 5620.

SPECIAL EDUCATION STUDENT TEACHING........15 hours
Special Education 4880, 4881, 4882.

ELECTIVES........................................10 hours

TOTAL MINIMUM REQUIRED...............189 hours

*Requires admission to Teacher Education Program

B. Concentration in Combined General Special Education and Elementary Education

GENERAL EDUCATION..................................99 hours

Communications (12 hours)
- English 1010-20 and 1031 or 1032 or 1033;
- Speech 1211 or 2021 or 2131 or any speech elective.
  (Some students may be required to take
  English 1019 based on placement scores.)

Health and Physical Education (18 hours)
- P.E. 3450, School Health 3510, Psychology 2500,
  P.E. activities elective (6 hours).

Humanities (12 hours)
- Literature (8 hours); elective from foreign
  language above the introductory level, philosophy,
  religious studies, art, or music (4 hours).

Mathematics (9 hours)
- Math 2110, 2120, 2130.

Natural Science (20 hours)
- Biology 1210, 1220, 1230 and Physics 1410, 1420.

Social Studies (18-20 hours)
- Electives from anthropology, economics,
  geography, political science and sociology.
  Minimum of three areas to be represented
  (14-16 hours).

CORE PROFESSIONAL COURSES.............. 9 hours
- Educ. C & I 3301*, 3320*, 3370*, 3391, 3390,
  3511-12-13 or Special Education 4361, 4810*, 4820*.

SPECIALIZED COURSES.................. 18 hours
- Educ. Psych. 2430, Art Educ. 2100, 2110, Music
  Educ. 2100, Language 2120, Special Educ. 2110.

SPECIAL EDUCATION COURSES.............42 hours
- Special Education 3333, 3520, 4110, 4120, 4610,
  4130, 4351, 4440, 4470, 5260, 5620, and 6
  hours psychology or educational psychology
  electives.

STUDENT TEACHING WITH EXCEPTIONAL CHILDREN
- Special Education 4880, 4881, 4882.

TOTAL MINIMUM REQUIRED............... 209 hours

2. Specialization in Elementary Education

GENERAL EDUCATION..................................77 hours

Communications (9 hours)
- English 1010-20 and 1032. (Some students may be
  required to take English 1019 based on
  placement scores.)

Health and Physical Education (15 hours)
- Physical Education 3450; School Health 3510,
  3610; physical education electives.

Psychology (4 hours)
- Psychology 2500.

Humanities (11 hours)
- Literature (8); elective from philosophy, art,
  religious studies, or music.

Mathematics (3 hours)
- Mathematics 2110.

Natural Sciences (16 hours)
- Biological science (some students choose a
- 6 hours physical science: Physics 1410-20-30,
  Astronomy 2110-20-30, Chemistry 1110-20-30.

Social Studies (12 hours)
- History 1510, 1610, 2010-20.

Choose 3 areas: anthropology, economics,
  geography, political science, sociology.

CORE PROFESSIONAL COURSES............9 hours
Educ. C & I 3101*, 3260, 3301*, 3370, 3720*.

SPECIALIZED COURSES.................. 18 hours
- Educational Psychology 2430, Art Education

AREA OF CONCENTRATION..................67 hours
- Audiology and Speech Pathology electives (3050 recommended),
- Audiology and Speech Pathology 3100, 4010, 4020, Special Education 2110-20-30,
  3333, 4190, 4200, 4210-20-30, 4250, 4280-90, 4351-61-71, 4870, 4871, and pre-student teaching
  seminar.

AREAS OF SPECIALIZATION...................30 hours
- C S 4110 or 4630; Ed. C&I 4450, 4451; Special
  Education 5620; choose 9-21 hours from the
  following: C S 3110, 3120, 3130, 3210 & 3220 or
  Educational Psychology 2430, 3110, 4110, 4200,
  4250, 4420, 4610, 4620, 4630.

TOTAL MINIMUM REQUIRED...............180 hours
Health and Physical Education (6 hours)
Activities courses recommended plus health and physical education electives (both areas must be represented).

Humanities (16 hours)
English (4 hours from 2000-level literature). Electives representing two areas from the following: anthropology, art, English (literature), foreign language (above introductory level), history (upper division), Library and Information Science 3510-20-30, music, philosophy, and religious studies.

Mathematics elective (4 hours).

Natural Sciences (16 hours)
4 hours biological sequence; 8 hours physical science.

Psychology (4 hours)
Psychology 2900.

Social Studies (20 hours)
History electives (8 hours) plus 12 hours representing three areas from anthropology, economics, geography, political science, sociology.

General Electives (6 hours).

CORE PROFESSIONAL EDUCATION ................. 9 hours

SPECIALIZED PROFESSIONAL EDUCATION ........ 6 hours
Educational Psychology 3810 and appropriate methods course for major area.

AREA OF CONCENTRATION ...................... 67 hours
Audiology and Speech Pathology elective (3050 recommended); Audiology and Speech Pathology 3010, 4700, 4930 (or 9590), Special Education 2110- 20-30, 3333, 4190, 4200, 4210-20-30, 4250, 4260, 4290, 4351, 4361, 4371 (or Educ. C&I 3521-22-23), 4870, 4871, and pre-student teaching seminar.

MAJOR AREAS ................................... 30-45 hours
NOTE: 30 quarter hours are required for graduation and Council on the Education of the Deaf Certification. For Tennessee State Certification for Teaching Non-handicapped Students, additional credit hours are required.

TOTAL MINIMUM REQUIRED FOR GRADUATION AND HEARING IMPAIRED EDUCATION CERTIFICATION .................. 187 hours

4. Specialization in Multiple Handicapped GENERAL EDUCATION ......................... 75 hours
Communications (9 hours)

English 1010-20 and 1032. (Some students may be required to take English 1019 based on placement scores.)

Health and Physical Education (10 hours)
School Health 3510; Physical Education 3450 and physical education electives.

Psychology (4 hours)
Psychology 2500.

Humanities (11-12 hours)
18 hours electives (choose 2 areas): anthropology, art, history, philosophy, foreign language (above introductory level), religious studies, music, library and information science.

Mathematics (3 hours)
Mathematics 2110.

Natural Science (20 hours)
8-12 hours in biological science: any one series Biology 1210-20; Botany 1110-20.

8-12 hours in physical science: Physics 1410-20, 2410-20; Astronomy 2110-20-30, Chemistry 1160-20-30.

Social Studies (18-20 hours)
Health 1150-20 or 2150-20.

Choose 3 areas: anthropology, economics, geography, political science, sociology.

CORE PROFESSIONAL COURSES ................. 9 hours
Educ. C&I 1 310*, 320, 330*.

AREA OF CONCENTRATION ...................... 67 hours
Audiology and speech pathology elective (3050 recommended); Audiology and Speech Pathology 3010, 4700, 4930 (or 9590), Special Education 2110- 20-30, 3333, 4190, 4200, 4210-20-30, 4250, 4260, 4290, 4351, 4361, 4371, 4870, 4871, and pre-student teaching seminar.

AREA OF SPECIALIZATION ...................... 30 hours
Selected from the following; Spec. Ed. 3210-20- 30, 3310, 3320, 4110, 4120, 4150-60, 4440, 4610-20, 4840, 5400, 5401, 5620, and special education electives.

TOTAL MINIMUM REQUIRED ...................... 181 hours

D. Concentration in Speech and Hearing GENERAL EDUCATION ......................... 84 hours
Communications (12 hours)

English 1510-20, Speech 2311.

B. Distributive Education
GENERAL EDUCATION ......................... 85 hours
Communications (12 hours)

English 1010-20 and 1031 or 1032 or 1033; speech elective.

Health and Physical Education (9 hours)
School Health 3330 and health and P.E. electives.

Mathematics (8 hours)
Mathematics 1540 and 1550.

Humanities (16 hours)
Literature elective (4) plus 12 hours humanities electives.

Natural Science (12 hours)
Biological or physical science sequence.

Psychology (7-8 hours)
Psychology 2500; Psychology 2520 or Educ. Psych. 3110.

Social Studies (20 hours)
History 1510-20 or 2510-20; Economics 2110-20- 30; plus elective.

PROFESSIONAL EDUCATION ................. 42 hours

SPECIALIZED COURSES ....................... 45 hours
Business Admin. 1110; Office Admin. 4310 or 4320; Accountant 1100; Marketing 3110-20, 4140, 4150; 4210; Finance 3120; Industrial Management 3010; Textile elective; Business Law 4110; Distributive Educ. 4140; Advertising 3000.

ELECTIVES .................................. 12 hours

TOTAL MINIMUM REQUIRED ...................... 183 hours

*Requires admission to Teacher Education Program.

C. Industrial Education
Option 1. Concentration in Trades and Industries
GENERAL EDUCATION ......................... 67 hours
Communications (12 hours)

English (9 hours); speech elective (3 hours).

Health and Physical Education (9 hours)
Health and P.E. electives. (Both areas must be represented.)

Humanities (15 hours)
Literature elective (4 hours). Two additional areas taken from the following: philosophy, anthropology, art or education, literature, foreign language, music or religious studies.

Mathematics (3 hours).

Natural Science (12 hours).

Psychology (4 hours)
Psychology 2500.

Social Studies (12 hours)
Two areas from the following must be represented: history, anthropology, economics, geography, political science, sociology.

PROFESSIONAL EDUCATION ................. 12 hours
Educ. C&I 3010*, 3030 (select any two); Special Education 3333; Ed. Psych. 3810.

PROFESSIONAL INDUSTRIAL EDUCATION .... 42 hours
Indus. Ed. 3110, 3310, 3320, 3340, 3610, 4120, 4210, 4310, 4410, 4420, 4522.

OCCUPATIONAL COMPETENCY .................. 45 hours
Indus. Ed. 3010, 3020, 3030.

ELECTIVES .................................. 20 hours

TOTAL MINIMUM REQUIRED ...................... 186 hours

*Requires admission to Teacher Education Program.

Option 2. Concentration in Industrial Arts
GENERAL EDUCATION ......................... 67 hours
Communications (12 hours)

English (9 hours); speech (3 hours).

Health and Physical Education (9 hours)
Health and P.E. electives. (Both areas must be represented.)
Humanities (15 hours)
- Literature elective (4 hrs); art or art education (8 hrs); 2 hrs additional hours taken from the following: history (upper division), philosophy, anthropology, foreign language (beyond introductory level), music or religious studies.
- Mathematics (3 hours).
- Natural Science (12 hours).
- Psychology (4 hours).
- Social Studies (12 hours).
- Two areas from the following must be represented: history, anthropology, economics, geography, political science, sociology.

PROFESSIONAL EDUCATION: 10 hours
- Educ. CAl 301*, 302, 303* (select one); Special Education 3333; Ed. Psych. 3000, 3810.

PROFESSIONAL INDUSTRIAL EDUCATION: 30 hours
- Indus. Ed. 3160, 3211, 3212, 3220, 4210, 4420, 4610.

TEACHING AREAS: 63 hours
- Communication (Drafting, Graphic Arts)
- Indus. Ed. 1650, 2651, 2652, 2672, Journalism 3910.
- Power and Transportation (Prime Movers, Electricity/Electronics)
- Indus. Ed. 1610, 1639, 2611, 2631, 3632.
- Construction and Manufacturing
- Indus. Ed. 1640, 1651, 2621, 2651, 2660, 3640, 3651, 3652, 4220, 4662, 4670.

ELECTIVES: 16 hours

TOTAL MINIMUM REQUIRED: 186 hours

*D Requires admission to Teacher Education Program.

D. Vocational Home Economics Education

See page 58 for this program.

E. Departments of Instruction

Art and Music Education

Professors:
- C. H. Ball (Head), Ph.D. Peabody
- A. W. Humphreys, Ed.D. Indiana; J. H. Jones (Emeritus), Ed.D. Columbia
- W. J. Julian, Ph.D. Missouri
- R. T. Robertson, Ed.D. Columbia

Associate Professors:
- H. H. Gans, B.S. Milwaukee State Teachers
- H. N. Hunt, Ed.D. George Peabody
- W. H. McDaniel, M.S. Tennessee
- M. O. Mintz, Ed.D. Columbia
- A. F. Tipp, Ph.D. Michigan

Assistant Professors:
- P. O. Johansen, Ed.D. Indiana; M. C. Moore
- D. P. Watkins, M.S. Tennessee

Art Education (141)

1511 Field Experiences in Teaching Art (1) Field experiences in which students perform tasks related to teaching and to teacher roles. S/N/C. May be repeated for credit.
2100 Introduction to Art Education in the Schools (3) Art grades 1 through 12; growth and development, objectives, motivation, evaluation. Experiences with school media. 1 hr. and 2 labs.
2110 Drawing, Painting, and Design Activities in Elementary School (3) Prereq: 2100; 1 hr. and 2 labs.
2120 Drawing, Painting, and Design Activities in Junior and Senior High School (3) Prereq: 2100; 1 hr. and 2 labs.
3110 Crafts in the Elementary School (3) Prereq: 2110; 1 hr. and 2 labs.
3210 Art in Secondary School Program (3) Program planning; materials and equipment; relation to other school subjects. Two hours of observation. Prereq: 9 hrs in art education. 1 hr. and 2 labs.
3511 Field Experiences in Teaching Art (1) Field experiences in which students perform tasks related to teaching and to teacher roles. S/N/C. May be repeated for credit.
3920 Clay in School Program (3) Exploring methods of hand-built forms, glazing and firing procedures. Prereq: 2100; 1 hr. and 2 labs.
3930 Textiles in School Program (3) Exploration of processes of weaving, embroidery, batik, and silk screen. Prereq: 2100; 1 hr. and 2 labs.
4120 Designing Teaching Aids for Art in School Program (3) Design and preparation of charts, exhibits, slides, films, and other teaching aids for art grades one through twelve. Prereq: 2100 or consent of instructor. 1 hr. and 2 labs.
4130 Three-Dimensional Design in School Program (3) Exploration of wood, wire, metal, plastics, and other sculptural materials. Prereq: 2100 or consent of instructor. 1 hr. and 2 labs.
4150 Lettering, Posters, and Displays in the School Program (3) Design and layout; techniques and procedures. Prereq: 2100 or consent of instructor. 1 hr. and 2 labs.
4160 Appreciation of the Arts in School Program (3) Prereq: 2100 or consent of instructor. 1 hr. and 2 labs.
4350-60-70 Problems in Art Teaching (3, 3, 3) Prereq: Consent of instructor.
4410 The Administration and Organization of Recreational Arts and Crafts Programs (3) Purpose of art activity in recreation; scope of activities, organizational procedures, resources, and coordination required in community arts and crafts programs.
GRADUATE
5000 Thesis
5002 Non-Thesis Graduation Completion (3-15)
5210 Organization, Administration, and Supervision of Art in the School Program (3)
5310 Art of Education (3)
5320 Program Development in Art Education (3)
5850-60-70 Problems in Art Education (3, 3, 3)

Music Education (707)

The curricula in music education provide for five areas of concentrations:
- Vocal music (voice principal): vocal music (piano or organ principal); elementary music education (voice principal); elementary music education (piano or organ principal); and instrumental music.
- 1010-20 Choral Laboratory (1, 1) Choral conducting, methods and materials, required of all music education majors. Prereq: approval of instructor.
- 1511 Field Experience in Teaching Music (1) Field experiences in which students perform tasks related to teaching and to teacher roles. S/N/C. May be repeated for credit.
- 2100 Basic Experiences in Classroom Music (3) Vocal, instrumental, rhythmic, listening, music reading, and creative activities. Prereq: major in elementary or special education. Five hrs. and 2 labs.
- 2110 Experiences in Classroom Music (3) Vocal, instrumental, rhythmic, listening, music reading, and creative activities. For music education majors. Prereq: Approval of instructor, one year of music theory. 2 hrs. and 1 lab.
- 2411-12-13 Methods, Materials, and Techniques of String Class Instruction (2, 2, 2) Structure, techniques of playing, care, and repair of principal instruments in school instrumental organizations. Emphasis on techniques necessary for basic understanding and effective teaching of the instruments. Practical use of current instructional materials. 2 hrs. 2 days per week.
- 2421-22-23 Methods, Materials, and Techniques of Woodwind Class Instruction (2, 2, 2) Structure, techniques of playing care and repair of principal instruments in school instrumental organizations. Emphasis on techniques necessary for basic understanding and effective teaching of the instruments. Practical use of current instructional materials. 2 hrs. 2 days per week.
- 2431-32 Methods, Materials, and Techniques of Brass Class Instruction (2, 2) Structure, use, techniques of playing, care and repair of principal instruments in school instrumental organizations. Emphasis on techniques necessary for basic understanding and effective teaching of the instruments. Practical use of current instructional materials. 2 hrs. 2 days per week.
- 3110 Teaching Music in the Primary Grades (3) Singing, rhythm, instrumental, listening, creative, and music reading activities; evaluation; materials appropriate for Grades K-3. For elementary education majors only. Prereq: 2100 or 2110. Educational Psychology 2430, upper-division standing.
- 3120 Teaching Music in the Intermediate and Upper Grades (3) Singing, rhythm, instrumental, listening, creative, and music reading activities; evaluation; materials appropriate for Grades 4-6. Primarily for elementary education majors. Prereq: Music 2100 or 2110. Educational Psychology 2430 and upper-division standing.
- 3130 Teaching Music in the Elementary School (3) Singing, rhythm, instrumental, listening, creative, and music reading activities; evaluation; materials appropriate for Grades K-3. For elementary education majors only. Prereq: 2100 or 2110. Educational Psychology 2430 and 3810 and two years of music theory.
- 3150 Teaching Music in Junior and Senior High Schools (3) Procedures, techniques, curriculum, scheduling, administration, evaluation, materials and equipment, community relations. Prereq: Two years of music theory; coreq: 3511.
- 3410 Teaching Instrumental Music (3) Problems and techniques, materials, instrument and equipment selection. Prereq: six hrs credit from 2411-21-31 series; coreq: 3410; 3511.
- 3511 Field Experiences in Teaching Music (1) Field experiences in which students perform tasks related to grading and to teacher roles. S/N/C. May be repeated for credit.
- 4350-60-70 Problems in Music Teaching (3, 3, 3)
- 4420-30 Choral and Instrumental Conducting (3, 3) Reading, conducting, and interpretation of vocal and instrumental scores suitable for school, church, and community groups. 4420 deals with vocal music. 4430 with instrumental music. Prereq: 1010-20 and three hours credit from 2411-21-31 series and two years of music theory. Must be taken in sequence. 2 hrs. and 1 lab.
- 4441-42-43 Teaching Class Piano (1, 1, 1) For majors in music, music education, or elementary education. Prereq: 2100 or approval of instructor. S/N/C.
- 4460 Marching Band Techniques (3) Functions, organization, and direction of a school marching band. Prereq: 2100 or 4420; one year of voice instruction, two years of music theory. 2 lecture hrs and 2 one-/hr. labs; meet with 1010-20.
Graduate
5000 thesis
5002 Non-Thesis Graduation Completion (3-15)
5150 Studies in Secondary School Music (3)
5210 Psychological Foundations in Music (3)
5220 Administration and Supervision of School Music (3)
5230 Comparative Teaching Procedures in Music Education (3)
5240 Evaluation Procedures in Music Education (3)
5250 Role of Music in Education (3)
5260 Music for Early Childhood (3)
5270 Studies of Music for Children in Primary Grades (3)
5320 Advanced Choral Literature and Conducting (3)
5350-60-70 Special Problems in Music Education (3, 3, 3)
5410 Advanced Band Literature and Conducting (3)
5510-20-30 The Talent Education Program of Shinichi Suzuki (2, 2, 2)
5710 Research in Music Education (3)
5810-20-30-40 Seminar (3, 3, 3)
Continuing and Higher Education (267)

Graduate
5000 Thesis
5002 Non-Thesis Graduation Completion (3-15)
5060 Adult Education: A General Survey (3)
5110 Seminar in College Teaching (3)
5360-70-80 Problems in Continuing and Higher Education (1-3, 1-3, 1-3)
5410 College and University Law—The Legal Environment (3)
5420 College and University Law—Constitutional Rights and Responsibilities of Students (3)
5430 College and University Law—Tort Liability and Risk Management (3)
5440 American Higher Education (3)
5450 Instruction in Higher Education (3)
5460 Adult Development (3)
5470 The Curriculum of Undergraduate Higher Education (3)
5510 Governance of Colleges and Universities (3)
5550 Fiscal Problems in Higher Education (3)
5680 Program Planning in Continuing and Higher Education (3)
5860 The Community-Junior College (3)
5955-65-75 Practicum in Continuing and Higher Education (1-3, 1-3, 1-3)
5960-70-80 Seminar in Continuing and Higher Education (1-3, 1-3, 1-3)
6450 Advanced Seminar in Program Planning (3)

(See also course listings under the Departments of Curriculum and Instruction, Educational Administration and Supervision, and Educational Psychology and Guidance.)

Curriculum and Instruction

Professors:

Associated Professors:

Assistant Professors:

Instructors:
M.A. Blank, M.S. Tennessee; V.G. Tuggle, M.S. Tennessee.

*Alumni Distinguished Service Professor.

Educational Curriculum and Instruction (301)

Undergraduate programs in the Department of Curriculum and Instruction provide the general professional courses for the preparation of teachers in elementary and secondary schools.

1410 Efficient Reading and Study Skills (1) Improvement of reading and study skills S/NC.
1500 Introduction to Early Education (3) Same as Child and Family Studies 1500.
2010-20-30 Field Study in Education (3, 3, 3) Problems of teachers in active service in the fields of methods of teaching, curriculum materials, school-community relationships, and school organizations.
3010 History and Philosophy of Education (3) Role of philosophy in education; realism, Neo-Thomism, pragmatism, and other contemporary movements; major ideas, historical roots, and modern applications. Permission Admission to Teacher Education. Undergraduate credit only.
3200 Principles and Organization of Education (3) Relation to current educational problems and practices; organization, administration, policy, school administration, professional education; professionalization of teaching. Undergraduate credit only.
3300 Social Foundations and Curriculum (3) Culture and society and their influences on curriculum; principles, problems, and procedures of subject matter selection; teaching and learning, and time allotment; curriculum issues; state curriculum policies and practices. Prereq. Admission to Teacher Education. Undergraduate credit only.
3150 Analysis of Teaching (3) Use of interaction analysis to describe and classify verbal interactions between teacher and student; related nonverbal behavior techniques. Prereq. Consent of instructor.
3180 Microteaching (3) Emphasis upon the development of instructional skills. Students teach a series of lessons to small groups of students in elementary or secondary schools. Lessons are videotaped, and the students and instructor evaluate the teaching behaviors recorded on the tape. Prereq. Consent of instructor.
3260 Teaching Language Arts in the Elementary School (3) Methods and materials in teaching writing, spelling, and language. Undergraduate credit only. Should be taken prior to or concurrently with CSE 3280. Prereq. Educational Psychology 2430 or equivalent, admission to Teacher Education.
3270 Teaching Social Studies in the Elementary School (3) Methods and materials. Undergraduate credit only. Prereq. Educational Psychology 2430 or equivalent, admission to Teacher Education.
3280 Teaching Developmental Reading in the Elementary School (3) Beginning course in sequence designed to enable preservice teachers to develop skills and understandings necessary for operation of successful developmental reading program in the elementary school. Prereq. Ed. Psych. 2430 or equivalent and admission to Teacher Education.
3281 Teaching Developmental Reading in the Elementary School (3) Second course in sequence designed to teach content and skills of teaching reading in the elementary school. Prereq. 3280.
3310 History of Education (3)
3320 History of Education in the United States (3)
3350 Teaching Arithmetic in the Elementary School (3) Goals, methods, materials, and evaluation. Undergraduate credit only. Prereq. Educational Psychology 2430 or equivalent; Mathematics 2110-20-30, admission to Teacher Education.
3510 Books and Related Materials for Children (3) Same as Library and Information Science 3510.
3511-12-13 Field Experiences in Teaching: Elementary (1, 1, 1) Field experiences in which students perform tasks related to teaching and teacher roles. May be taken separately or concurrently by consent of instructor. Must be taken before student teaching. Prereq.: 3511—Ed. Psych. 2430 or equivalent; 3512-13—admission to Teacher Education. S/NC.
3520 Books and Related Materials for Young People (3) Same as Library and Information Science 3520.
3521-22-23 Field Experiences in Teaching: Secondary (1, 1, 1) Field experiences in which students perform tasks related to teaching and teacher roles. May be taken separately or concurrently by consent of instructor. S/NC.
3531-32-33 Field Experiences in Teaching: Social Foundations (1, 1, 1) For description, see 3521-22-23. S/NC.
3531 Teaching of Speech and Drama, Grades 7-12 (3) For description see Educ. C 1 & 3653. This course and
Edu: C & I 3563 are required for certification in foreign languages. Must be taken concurrently with 3563.

3563 Teaching of Modern Foreign Languages: Reading, Literature and Composition, Grades 7-12 (3) For description see Educ. C & I 3653. This course and Educ. C & I 3562 are required for elementary and foreign languages. Must be taken concurrently with 3562.

3563 The Teaching of Social Studies, Grades 7-12 (3) Purposes, techniques, materials, and evaluation; directed observation in public schools; preparation of teaching plans and materials. Undergraduate credit only. Prereq: Educational Psychology 3810 or equivalent.

3654 The Teaching of Science, Grades 7-12 (3) For description, see 3653.

3566 The Teaching of Latin, Grades 7-12 (3) For description, see 3563. (Same as Classics 4210.)

3657 Teaching Language, Composition and Speaking, Grades 7-12 (3) For description, see 3653. Both this course and Ed. C & I 3568 are required for certification in English.

3658 Teaching Reading, Literature, and Listening, Grades 7-12 (3) For description, see 3653. Both this course and Ed. C & I 3567 are required for certification in English.

3720 Teaching Science in the Elementary School (3) Basic methods and techniques. Undergraduate credit only. Prereq: Ed Psych 2430 or equivalent, admission to Teacher Education.

3751 Teaching of Mathematics: Numerical and Algebraic Development, Grades K-12 (3) For description, see Edu. C & I 3653. Both this course and 3752 are required for certification in mathematics.

3752 Teaching of Mathematics: Geometry and Analysis, Grades 7-12 (3) For description, see Edu. C & I 3653. Both this course and 3751 are required for certification in mathematics.

4010 International Education: Europe and the Americas (3) Historical, philosophical and sociological foundations; special reference to England, USSR, France and Germany.

4110 Education in Cultural Perspective (3) Contribution of anthropological concepts, primarily concept of culture, to understanding of educational process and thought in our society and others. (Same as Anthropology 4110.)

4111 Non-Western Education: Anthropological Approaches (3) (Same as Anthropology 4111.)

4150 School Library Administration (3) (Same as Library and Information Science 4150.)

4210 Curriculum in Elementary School Social Studies (3) Survey of current curricular approaches and trends in elementary school social studies. Prereq: Teaching experience or student teaching.

4215 Teaching Elementary School Science (3) Methods and materials used in teaching of science in elementary school. Developmental and diagnostic/curricular approaches. Does not open to students with recent course or background in teaching of elementary school science.

4216 Teaching Elementary School Mathematics (3) Methods and materials used in teaching of mathematics in elementary school. Developmental and diagnostict/curricular approaches. Not open to students with recent course or background in teaching of elementary school mathematics.

4217 Teaching Elementary School Language Arts (3) Methods and materials used in teaching of elementary school language arts. Development of functional relationships with other curriculum areas, diagnostic procedures, and corrective work. Prereq: recent course or background in teaching of elementary school language arts.

4240 Classroom Instructional Organization (3) Developing understandings and skills relating to grouping, individualization, space utilization, organization, grading, integration, and achieving an effective social environment. For elementary classroom teacher. Prereq: Senior standing.

4250 Initiating the Activities Program (3) Prereq: Educational Psychology 2430, six quarter hours of methods of teaching in the elementary school, or junior or senior standing.

4260 Philosophy of Education: Introductory Studies (3) Truth, knowledge, and valuation in relation to work of the schools. Prereq: 3010, Educational Psychology 2430 or 3810, or equivalents.

4261 Educational Classics (3) Discussion of selected writings on education from Plato to Dewey.

4280 Diagnosis and Correction of Classroom Reading Problems (3) Prereq: 3280 or equivalent.

4300 Developmental Reading in the Secondary School (3)

4301 Teaching Developmental Reading (3) Methods and materials used in teaching of reading in the elementary school. Course includes development of functional relationships with other curriculum areas, diagnostic procedures and remedial work. Not open to students with recent course work or background in the teaching of reading.

4303 Language Development of Children: Birth-Preadolescence (3) In-depth view of language development from birth through preadolescence; application of this knowledge to instructional programs for early and middle childhood.

4340 The Junior High School and Middle School (3) In-depth study of the functional relationships of the Jr. High and High School curriculums.

4350-60-70 Problems in Teaching English (3, 3, 3)

4351-61-71 Problems in Teaching Mathematics (3, 3, 3)

4352-62-72 Problems in Teaching Social Studies (3, 3, 3)

4353-63-73 Problems in Teaching Science (3, 3, 3)

4354-64-74 Problems in Teaching Language Arts (3, 3, 3)

4355-65-75 Problems in General Curriculum (3, 3, 3)

4356-66-76 Problems in Instructional Materials (3, 3, 3)

4357-67-77 Problems in Teaching Foreign Languages (3, 3, 3)

4358-68-76 Problems in Teaching Social Studies (3, 3, 3)

4381 Problems in Early Childhood Education (3) May be repeated for a total of 9 hrs. Six hrs can be taken concurrently.

4400 Problems in Improvement of Instruction (1-3) Special conferences, workshops, or inservice programs designed for improvement of instruction. May be repeated. Maximum 9 hrs credit. S/NC.

4410 Educational Sociology (3) (Same as Sociology 4410.)

4430 Practicum in Teaching in the Elementary School (3) Practicum experience in elementary school classroom teaching designed for students seeking elementary certification who have obtained degrees in areas other than elementary education, and who have obtained degrees and certification in areas other than this. Application must be made to student teaching office at least one quarter prior to registration for practicum. Prereq: 3260-70-80, 3350, 3720 or equivalents are admission to Teacher Education.

4450 Teaching in Kindergarten: Overview (3) Relation of kindergarten to total elementary program; goals, historical settings and current developments.

4451 Teaching in Kindergarten: Program Development (3) Curriculum planning and organization; classroom management. Prereq: Admission to Teacher Education.

4452 Elementary School Teaching: Minicourses (1-2) Minicourses focusing on various aspects of teaching in elementary school. Topics vary. Prereq: Student teaching. May be repeated. S/NC.

4530 Home and School Relations (3) Study of new techniques which can develop closer relationship between the home and school at both elementary and secondary levels. Prereq: Senior standing.

4630 Current Educational Problems (3)

4654 Programs, Methods and Materials in Environmental and Science Education (3) Instructional materials, teaching methods, curricular programs and issues in environmental and science education.

4710 Student Teaching, Grades 7-12 (3) Application for student teaching must be filed not later than final quarter of junior year. Students should hold themselves available to do this work in off-campus center. Must be taken with 4720. Prereq: 3010-20-30, Educational Psychology 3810, appropriate special methods course(s), minimum grade point average of 2.0. Undergraduate credit only. S/NC.

4720 Student Teaching, Grades 7-12 (6) Cooperative planning with other students and teachers; analysis of process of language development of teaching competencies as a result of student teaching. Must be taken with 4710. Undergraduate credit only. S/NC.

4750 Utilization of Instructional Media (3) Introduces the basic communications process, need for instructional media, instructional development, selection and utilization of media and basic software production techniques. (Same as Library and Information Science 4750 and Vocational-Technical Education 4750.)

4810 Student Teaching in the Elementary School (9) Application for student teaching must be filed not later than final quarter of junior year. Students should hold themselves available to do this work in off-campus centers. Must be taken with 4820. Prereq: 3010-20-30, 3260-70-80, 3350, 3720; Educational Psychology 2430; Library Service 3510; minimum grade point average of 2.0. Undergraduate credit only. S/NC.

4820 Student Teaching in the Elementary School (6) Must be taken with 4810. Undergraduate credit only. S/NC.

4840 Introduction to Data Processing in Education (3) Analysis of current activities in field of educational data processing. Emphasis on curriculum administration and processing of course offerings and opportunities in education, using modern electronic data processing methods and machines.

4850 Student Teaching in Elementary School (K-3) (6) Application filed no later than second quarter of junior year with placement one quarter prior to quarter of graduation. Prereq: Educ. C & I 3260, 3270 or 3720, 3280, 3350, 4450; CFS 3120, 3210. S/NC.

4851 Student Teaching in Elementary School (K-3) (9) Application filed no later than second quarter of junior year with placement one quarter prior to quarter of graduation. Prereq: Educ. C & I 3260, 3270 or 3720, 3280, 3350, 4450; CFS 3120, 3210. S/NC.

4860 Programmed Learning (3) Theories of learning, related to programmed instruction; techniques and applications of programming; 2 lectures and 1 lab. Prereq: Psychology 3210; Educational 4750. Psychology 3730, or consent of instructor. (Same as Psychology 4860.)

GRADUATE

Graduate instruction in the Department of Curriculum and Instruction provides opportunities to improve the effectiveness of educational service in a number of areas.
6750-60-70 Problems in Curriculum and Instruction (3, 3, 3)
6830 Studies in Mathematics Education (3)
6850 Principles of Educational Leadership (3)
6899 Internship (1-6)

Educational Administration and Supervision (292)

Professors:

Associate Professors:
H.F. Aldmon, Ed.D. Tennessee (Vice Chancellor for Student Affairs); G.W. Harris, Jr., Ph.D. Michigan; P.M. Husen, Ed.D. Stanford.

GRADUATE
5000 Thesis
5002 Non-Thesis Graduation Completion (3-15)
5100 Internship in Educational Administration (3)
5130 Introduction to Educational Administration (3)
5180-90-5200 Educational Specialist Research and Thesis (3, 3, 3)
5220 Philosophy and Theory in Educational Administration (3)
5230 Seminar in the Behavioral Sciences for Educational Administration (3)
5290 The Politics of Education (3)
5310 School Administration in a Multi-Ethnic Society (3)
5420 District Level Administration (3)
5430 Building Level Administration (3)
5440 Introduction to Law, Finance, and Business Management at the Building Level (3)
5450 Organization of the School Program (3)
5470 Introduction to School Facility Planning (3)
5480 Introduction to Supervision and Personnel Administration (3)
5490 Administration of Community Education (3)
5530 Introduction to Educational Planning (3)
5560 Analysis and Interpretation of Research for Educational Administrators (3)
5580 Seminar in Communication Skills for Educational Administrators (3)
5711-21-31 Problems in Educational Administration and Supervision: School Operation (3, 3, 3)
5712-23-32 Problems in Educational Administration and Supervision: Higher Education (3, 3, 3)
5713-23-33 Problems in Educational Administration and Supervision: State School Administration (3, 3, 3)
5714-24-34 Problems in Educational Administration and Supervision: Preparation Programs (3, 3, 3)
5715-25-35 Problems in Educational Administration and Supervision: Community Education (3, 3, 3)
5720 Seminar in Urban School Administration (3)
5730 School Business Management (3)
5740 School Law (3)
5751-61-71 Problems in Educational Administration and Supervision: Theory (3, 3, 3)
5752-62-72 Problems in Educational Administration and Supervision: Finance (3, 3, 3)
5753-63-73 Problems in Educational Administration and Supervision: Transportation (3, 3, 3)
5754-64-74 Problems in Educational Administration and Supervision: Business Management (3, 3, 3)
5755-65-75 Problems in Educational Administration and Supervision: Personnel (3, 3, 3)
5756-66-76 Problems in Educational Administration and Supervision: School Plant (3, 3, 3)
5757-67-77 Problems in Educational Administration and Supervision: Organization and Structure (3, 3, 3)
5758-68-78 Problems in Educational Administration and Supervision: School Law (3, 3, 3)
5759-69-79 Problems in Educational Administration and Supervision: Supervision (3, 3, 3)
5770 Maintenance of School Plants (3)
5780 Supervision (3)
5790 School Board-Superintendent Relationships (3)
5810 Survey Research Methods (3)
5820 Contemporary Economics and Educational Finance (3)
5880 Decision Making and Decision Theory in Educational Organizations (3)
5910-20-30 Problems in Lieu of Thesis (3, 3, 3)
5980 Administration in Higher Education (3)
5981 Specialized Seminar in Education Administration and Supervision: School Operation (3)
5982 Specialized Seminar in Education Administration and Supervision: Higher Education (3)
5983 Specialized Seminar in Education Administration and Supervision: State School Administration (3)
5984 Specialized Seminar in Education Administration and Supervision: Preparation Programs (3)
5991 Specialized Seminar in Education Administration and Supervision: Theory (3)
5992 Specialized Seminar in Education Administration and Supervision: Finance (3)
5994 Specialized Seminar in Education Administration and Supervision: Business Management (3)
5995 Specialized Seminar in Education Administration and Supervision: Personnel (3)
5998 Specialized Seminar in Education Administration and Supervision: School Law (3)
6000 Doctoral Research and Dissertation
6040 Seminar in Educational Administration and Supervision (1, 1, 1)
6100 Internship in Educational Administration (3)
6210 Modern Trends in the Theory and Practice of Educational Administrators and Supervisors (3)
6220 Programs for the Professional Preparation of Educational Administration and Supervision (3)
6460 School Personnel Administration (3)
6480 Special Topics in School Personnel Administration (3)
6530 Futuristic Educational Planning Methods (3)
6550 State-Federal Relations in Education (3)
6560 Legal Foundations of Public Education (3)
6580 Seminar in Managing Conflict (3)
6750-60-70 Independent Studies in Educational Administration and Supervision (3, 3, 3)
6800 Administration of Complex Educational Organizations (3)
6870 Advanced Study in School Facility Planning (3)
6990 Specialized Doctoral Seminar in Politics of Education (3)
6996 Specialized Seminar: School Plant (3)
6997 Specialized Seminar in Organization and Structure (3)
6999 Specialized Seminar: Supervision (3)

Educational Psychology and Guidance (311)

Professors:

Associate Professors:

Assistant Professors:

1000 Career Development: Career and Educational Decision Making (3) Assists students in identifying where they are in their lives in relation to where they would like to be in terms of their values, skills, goals, plans, and interests. Utilization of this information in career decision-making process.

2000 Field Experience (1) Field experiences in working with children and youth and their teachers. Students will perform various teaching tasks and be given opportunity to act in teaching roles. May be repeated for a total of six credit hrs.
2430 Child Study (3) Child learning and development: study of individual children, ages 5-12. Prereq: Psychological 2500 or equivalent; coreq: either Educational Psychology and Guidance 2000 or a 2 hr/week field experience.

2510 Child and Adolescent Study (4) Encompasses study of principles of behavior, intervention techniques, principles of child and adolescent development, special categories of children, child in relationship to family and community, and methods of studying children. Prereq: Educational Psychology 1000 and Psychology 2520 or consent of instructor.

2520 Personal and Social Development of the College Student (4) Development of communication skills and social relationships; enhancement of self-concept and understanding of self; and assistance in developing effective study skills. Weekly two hour laboratory experience. Prereq: Educational Psychology 1000, Psychology 2500 and Educational Psychology 2510 or consent of instructor.

3000 Field Experience (1) Field experiences in working with children and youth and their teachers. Students will perform various teaching tasks and be given opportunity to act in teaching roles. May be repeated for a total of six credit hrs.

3100 Application of Learning Theory to Classroom Teaching (4) Overview of learning theories such as contiguity theory, reinforcement theory, cognitive theory, and statistical models with particular emphasis on concepts applicable to classroom teaching. Two hr lab and/or field experience arranged. Prereq: Psychology 2500.

3110 Classroom Behavior Management (4) Student will develop understanding of behavior management procedures and skill in utilizing behavior management procedures in shaping pupil classroom behaviors. Prereq: Psychology 2500.

3550 Child Psychology (4) (Same as Psychology 3550).

3560 Individual Skills for Campus Leaders (3) Knowledge and skills for effectively managing leadership and administrative roles in campus organizations.

3730 Educational Psychology (3) Increasing effectiveness of learning. Prereq: Psychology 2110-20 or equivalent.

3810 Educational Psychology: Adolescence (3) Physical, emotional, intellectual, social and spiritual dimensions of adolescent development; major emphasis given to effective communication with adolescents within the educational setting. Prereq: Psychology 2500 or equivalent; or consent of either Educational Psychology and Guidance 3000 or a 2 hr/week field experience.

4110 Psychology of Sex Role Development (3) Examination, from both a theoretical and research base, of factors which contribute to sex role development with attention to changes in sex role definition in society and role of education in these changes. Aimed at the undergraduate or graduate student with minimal background in behavioral sciences.

4120 Mental Health (3) Studies and exploration of positive mental health. Application of mental health criteria to a study of one's self based on a battery of personality assessment instruments.

4350-60-70 Problems in Educational Psychology and Guidance (3, 3, 3)

4440 General Education Procedures for Public Schools (3) Prereq: 2430 or equivalent.

4551-52-53-54-55-56 Student Leadership Workshops (1, 1, 1, 1, 1, 1) Series of small group and individualized experiences to develop knowledge and skills required of students in leadership roles. Sections are designed for resident assistants, student government leaders, student activities, and other student organizations. Prereq: Consent of instructor. S/NC.

4640 Standardized Testing (3) Use and interpretation of standardized group instruments in assessment of intellectual aptitude, achievement, vocational interests and personality adjustment.

4650 The Construction of Classroom Tests (3) Concerned with teacher-made classroom tests: instructional objectives, principles of test construction, item analysis, evaluating a test's reliability and validity, interpretation of test scores, relationship between testing and grading.

4700 Assertiveness Training (1) Readings and group exploration of the principles of assertiveness and the application of assertive behavior in a variety of settings.

4760 Advanced Child Study (3) Prereq: 2430 or 3810 or consent of instructor.

4800 Psychology of the Disadvantaged Child (3) Significant behavioral differences and causes; appropriate intervention approaches.

4810 Psychoeducational Aspects of Appalachian People (3) Exploration of psychology of people of Appalachian region through an examination of history, culture, and role of education.


4890 Differential Psychology (3) Nature and sources of individual differences in behavioral characteristics, and differences between racial, ethnic, socioeconomic, and other groups.

4910 Diagnostic and Corrective Teaching (3) Teachers and supervisors study practical procedure for improving pupil's learning.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5040 Guidance and Pupil Personnel Services in Education (3)

5050 Children and Adolescents (3)

5060 Group Approaches with Students (3)

5070 Seminar in Elementary School Guidance (3)

5099 Field Work in School Psychology (1-6)

5100 Developmental Psychology (6)

5110 Psychology of Women (3)

5111-12-13 Seminar in Current Issues in School Psychology (1, 1, 1)

5120 Seminar in Bias-Free Counseling (3)

5140-50-60 Psychoeducational Assessment (3, 3, 3)

5149-59-69 Practicum in School Psychology I (2, 2, 2)

5180-90-5200 Educational Specialist Research and Thesis (3, 3, 3)

5210 Interpreting Published Articles: Statistics (3)

5220 Interpreting Published Articles: Research Design (3)

5319 Field Work in School Psychology: Level I (2)

5320 Advanced Classroom Behavior Modification (3)

5330 Theory and Research in Human Learning (3)

5331 Current Developments in Human Learning (3)

5340 Group Dynamics (3)

5500 Educational Applications of Cognitive Theories (3)

5420 College and University Law—Constitutional Rights and Responsibilities of Students (3)

5550 Student Personnel in Higher Education (3)

5560 The College Student (3)

5570 Case Studies in College Student Personnel (3)

5720 Evaluation in Education (3)

5780 Career Development: Theory and Research (3)

5785 Career Development: Program Development Evaluation and Implementation (3)

5790 Career Development: Workshop (1-6)

5840 Student Appraisal (3)

5850-60-70 Special Topics and Problems in Educational Psychology and Guidance (1-6, 1-8, 1-6)

5880 Career Development: Occupational and Educational Resources (3)

5890 Counseling Theories and Techniques (3)

5897 Pre-Practicum (3)

5910-20-30 Problems in Lieu of Thesis (3, 3, 3)

5940 Counseling Practicum (3)

5945 Group Counseling Practicum (3)

5950-60 Theory and Practice in Consultation (3, 3)

5959-69 Practicum in Consultation (3, 3)

5980 Organization and Administration of Counselor Programs (3)

5990 Practicum in College Student Personnel (3)

6000 Doctoral Research and Dissertation

6040 Seminar in Educational Psychology and Guidance (No credit)

6099 Internship (1-6)

6110 Application of Research Design in Educational Psychology and Guidance (3)

6120 Application of Experimental Research Design in Educational Psychology and Guidance (3)

6319 Field Work in School Psychology: Level II (2)

6550-60-70 Seminar in College Student Personnel (2, 2, 2)

6610-20-30 Seminar in Dissertation Proposal Writing (2, 2, 2)

6650-60-70 Systems Approaches in Psychological Services (3, 3, 3)

6689-69-79 Practicum in School Psychology III (2, 2, 2)

6750-60-70 Problems in Psychology and Guidance (3, 3, 3)

6810 Seminar in Counseling (3)

6840-50-60 Seminar in Professional Issues (1, 1, 1)

6910 Special Topics Seminar (3)

6914-42-43 Practicum in Guidance, Counseling and Personnel Services (3, 3, 3)

6944-45-46 Teaching Practicum in Educational Psychology and Guidance (3, 3, 3)

6950 Counseling Supervision (3)

School of Health, Physical Education, and Recreation

Madge M. Phillips, Director

At the undergraduate level, professional preparation programs are offered in health, physical education, dance, and recreation. For information on graduate programs leading to the Master of Science, the Master of Public Health, Educational Specialist, the Doctor of Education, or the Doctor of Philosophy.
degrees, see the Graduate Catalog.

The School of Health, Physical Education, and Recreation also provides activities programs for all students in physical education and service courses in health and safety.

Health and Safety Education

Professors:
R.H. Kirk (Chairman), H.S.D. Indiana;

Associate Professors:
J.A. Ahmad, Ph.D. Oregon, M.D. Punjab (India);
A.J. Brown, Ed.D. Tennessee; J.D. Gorski, Dr. F.R. UCLA; C.B. Hamilton, Dr. P.H. Oklahoma.

Assistant Professors:

Instructors:

Public Health (839)

1110 Principles in Personal Health (3) To develop ability to approach health scientifically and to develop justifed confidence in judgments affecting personal health.

2040 Seminar in Human Sexuality (2) Problems and responsibilities of being male and female. S/NC.

2050 Seminar in Drug Use and Abuse (2) Intensive look at problems related to use and abuse of drugs. S/NC.

3000 Foundations of Health Science (3) In-depth study of content areas relating to personal health and contemporary health problems, i.e., mood modifying products, consumer health, international health, personal health practices, reciprocal relationships involving man, disease and environment. (Same as School Health 3000.)

3210 First Aid and Emergency Care (4) Theory and practice of first aid and emergency care. Instruction in medical self-help. Course leads to Red Cross Certification in Advanced First Aid and Emergency Care. (Applicant must be at least 16 years of age for certification.) (Same as School Health 3210.)

3310 Communicable and Noncommunicable Diseases (3) Modern concepts of disease; etiology of communicable and chronic diseases; problems including prevention and control. Prereq: One year of biological science and one course in bacteriology.

3320 Sanitation (3) History of sanitary awakening; diseases producing relationships and controls of water, sewage, refuse, milk, meat and other foods, air, insects and soil; sanitation of homes, swimming pools, industrial plants, markets, restaurants, camps, and public bathing places. Healthful school living as affected by buildings and grounds, lighting, acoustics, thermal control, and safety provisions. Prereq: One year biological science, one course in microbiology. 2 hrs and 1 lab.

3330 Introduction to Public Health (3) Philosophy, organization, and functions of federal, state, and local officials and voluntary public health agencies. Includes periodic field trips.

4120 Community Health Problems—Alcoholism (3) Explores problems of alcoholism regarding overall health of community. Emphasis placed on factors making alcoholism a serious public health problem. Various types of educational programs to control the disease covered.

4130 Community Health Problems—Suicide (3) Explores problems of suicide regarding overall health of community.

4140 Community Health Problems—Death Education (3) Exploration of ramifications of death and dying as related to personal and community health.

4210 Urban and Industrial Health (3) Health problems created by a burgeoning population and the megalopolis; industrial health problems of concern to management, supervisor, and industrial worker; control of occupational diseases, poisons, accidents, and other conditions incidental to industry.

4220 Communications for Better Health (3) Selective study of communications in health enterprises. Consideration in logical progression the problems of transmitting current and new information to practitioners; communications among members of modern health teams, among health agencies, and use of mass media for transmitting health information.

4410 Consumer Health and Safety Education (3) Survey of major consumer health and safety problems; selecting, purchasing, and financing of safety and medical services.

4411 Instructor's Advanced First Aid and Emergency Care (3) Designed to teach First Aid. Satisfactory completion qualifies one for American National Red Cross Certification as an Advanced First Aid and Emergency Care Instructor. (A requirement for this certification is that an applicant must be at least 21 years of age.) Prereq: S210 or valid Advanced First Aid and Emergency Care Certificate.

4412 Cardiopulmonary Resuscitation (2) Theory and skills necessary to implement basic cardiac life support following cardiac arrest due to such conditions as heart attack, drowning, electrocution, suffocation, poisoning, death intoxication, and vehicular and other accidents. Educational and preventive aspects of controlling cardiac vascular disease will be stressed. (Same as School Health 4412.)

4420 Drug Abuse Education (3) Drug abuse problems and suspected causes; pharmacology of drugs and effects on society and methods of drug abuse education.

4700-10-20 Field Practice in Public Health (3, 3, 3) Field practice in public health under supervision of public health profession. S/NC.

4730 Workshop in Public Health Education (3-6) For teachers, nurses, case workers, sanitarians, and other voluntary and public health agency personnel; emphasizes the problem-solving approach through small group interaction, case method, and critical incident technique. May be repeated for credit.

4840-50-60 Problems in Public Health Education (1, 1, 1) Individual identification and study of current problems in public health education. Extensive reading of literature required.

GRADUATE

5002 Non-Thesis Graduation Completion (3-15)

5010-20-30 Workshop in Public Health (3-6, 3-6, 3-6)

5070-80-90 Field Practice and Seminar in Public Health (3-5, 3-5, 3-5)

5110 Environmental Health (3-5)

5120-30 Occupational Health and Safety (5, 5)

5150 Industrial Toxicology (3)

5220 Health and Sickness in the Focus of Public Health Education (2)

5410 Epidemiology (3)

5420 Administration of Public Health (3)

5430 Vital and Medical Statistics (4)

5440 Materials and Methods in Public Health Education (4)

5540 Factors in Problem Solving for Community Health (5)

5550 The Public Health Educator in Community Organization and Development (4)

5560 Functions and Roles of the Public Health Educator (3)

5580 Physical Activity and Health (5)

5701 Advanced Professional Health Education: Health Planning I (3-5)

5710 Advanced Professional Health Education: Health Planning II (3-5)

5715 Advanced Professional Health Education: Health Planning III (3-5)

5730 Dental Health Education (3-5)

5735 Emergency Medical Services (3-5)

5745 Family Health Unit (3-5)

5750 Health and Medical Care Legislation and Law (3-5)

5755 Health Facilities Administration (3-5)

5760 Health Services Administration (3-5)

5785 Occupational Health Unit (3-5)

5790 Self-Care Unit (3-5)

5795 The Training of Paramedical Personnel (3-5)

5840-50-60 Problems in Public Health Education (1-3, 1-3, 1-3)

6000 Doctoral Research and Dissertation

6030 Critical Analysis of Writing and Research in Health Education (3)

6050-60 Seminar in Health Education (3, 3)

6210 Health Aspects of Gerontology (3)

6220 Seminar on the Nation's Health (3)

6230 International Health (3)

Safety (890)

3520 Principles of General Safety (3) Deals with principles, practices and procedures in general safety. Covers safety problems in school traffic, recreation, industry, home, and other public areas.


4410 Driver and Traffic Safety Education (5) Preparation of teachers of driver education in schools and colleges. Students are required to teach at least one nondriver. Valid driver's license required for 3 hrs and 2 labs.

4412 Cardiopulmonary Resuscitation (2) (Same as School Health 4412.)

4420 Advanced Driver and Traffic Safety Education (6) Development of competency in teaching of driver education through use of simulation, multimedia and multiple-car driving range. Emphasis placed on teaching skills and supervision. Prereq: 4410.

4430 Sports Safety (6) Accident prevention and injury control in sports activities; philosophy of sports safety; human environmental factors and their interrelationships in sports injury and their control; risk-taking and decision solution strategies; and contributions of sports medicine to safety. 3 hrs lecture and 2 hrs lab.

4720 Workshop in Safety (3-6) Deals with special safety education problems. For advanced undergraduate students, graduate students, teachers, supervisors, and administrators. May be repeated for credit.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5320 Behavioral Problems in Safety Education and Accident Prevention (3)

5330 Problems and Research in Accident Prevention (3)
3650 Human Growth and Motor Development (3)
   Structural and functional changes in man from birth to old age, and relationship of changes to physical performance and skill development.


3610-20 Individual and Dual Sports (2, 2) Instruction, student teaching, and practice in organizing adult sport and recreational activities suitable for schools, churches, or community recreation centers.

3650 Teaching Strategies and Program Implementation in Early Elementary Physical Education (3) Understanding and employing teaching strategies appropriate to elementary physical education, and study of program content and implementation. Prereq: 3570.

3660 Basic Movement Sequences for Children (3) Movement patterns and skills which are fundamental to dance, quiet and active games, sports, and design processes and present sequential learning tasks and creative activity experiences. Prereq or coreq: 3650.

3670 Practicum in Developmental Movement for Early Childhood (3) Experiences in designing and presenting developmental movement tasks to preschool children. Prereq or coreq: 3660.

3680 Structured Movement Activities in Elementary Physical Education (4) Self-testing, games and sports, and dance activities included in elementary school physical education program, with emphasis upon designing and presenting sequential learning experiences. Prereq: 3670.

3710 Camping (2) Theory and practice in leadership with practical experience in camp craft skills.

3720 Philosophy of Physical Education and Sport (3) Introduction to form and content of philosophy of physical education and sport. Specific emphasis on examination of metaphysical, epistemological and axiological status of physical education and sport. Prereq: 3650.

3880 Social Recreation (3) Theory and practice in social recreation for camps, community centers, clubs, and schools. Course includes folk and square dancing, quiet and active games, sports, and other recreational activities, and program planning. (Same as Recreation 3880.)

3910 Principles and Problems of Coaching (3) Examination of practical problems and situations which prepare students to make judgments and decisions in a coaching environment. Prereq: At least sophomore standing.

4010 Advanced Dance Technique (2) Development, interpretation, and performance of dance sequences; development of dance vocabulary; emphasis on analysis and practice of dance principles; solo and group work. Prereq: 3025.

4020 Practicum in Dance Production (2) Prereq: Consent of instructor.

4060 Advanced Dance Composition (2) Creation and development of ideas, themes, and dance forms; solo and group work. Prereq: 3060.

4070 Stagecraft for Dance Production (2) Equipment, lighting, design, properties, sets, and stage management.

4110 Adapted Physical Education (3) Classification of atypical students who require modified programs in physical education; activities and class organization suitable for required or special physical education classes.

4120 Administration of Physical Education (3) Selected topics in organization and administration programs related to physical education programs in schools. Emphasis placed on human relations approach to solving problems in administration.

4140 Tests and Measurements in Physical Education (3) Study of elementary statistics related to measurement. Critical examination of tests used to evaluate strength, sports skills, and physical fitness.

4150 Creative Rhythms for Children (3) Methods and materials for grades 1-6. 3hrs and 1 lab.

4160 Athletic Coaching Field Experience (2) Practical experience in coaching and related responsibilities. Must be repeated. Maximum credit 4 hrs. Prereq: Approval of instructor.

4230 Program Planning in Physical Education (3) Curriculum building, course construction, and lesson planning for public schools and colleges.

4310 Folk and Square Dance (2) Materials and methods for public schools, colleges, and recreation centers.

4320 Tap Dance (2) Instruction, practice, and student teaching.

4330-40-50 Specialization Study in Physical Education (1-3, 1-3, 1-3)

4410 Wrestling (2) Theoretical and practical work for prospective teacher; emphasis on safety procedures.

4430 Women's Gymnastics (2) Development of skills on balance beam, uneven parallel bars, and side horse vaulting; special emphasis on progression, safety, and coaching techniques. Open to men and women. Prereq: 3330.

4440 Men's Gymnastics (2) Development of skills on pommel horse, parallel bars, and long horse vaulting. Special emphasis placed on safety, progression, and teaching techniques. Open to men and women.

4450 Men's Gymnastics II (2) Development of skills on still rings, horizontal bar, trampoline, and exhibition gymnastics; special emphasis placed on safety, progression and teaching techniques. Open to men and women. Prereq: 4440.

4460 The Coaching and Judging of Women's Gymnastics (3) Appreciation of techniques used in the coaching and judging of women's gymnastics according to the rules of the United States Gymnastics Federation. National tests and ratings will be given. Both men and women are encouraged to take this course. Prereq: 2734 or 4440.

4550 Methods of Teaching Dance (2) Individual work with analysis and criticism. Prereq: senior standing and approval of instructor.

4880 Motor Behavior: A Theoretical Perspective (4) Examinations motor behavior from an information processing perspective and applies current research to support theoretical base. Prereq: Senior or graduate standing or consent of instructor.

4890 Motor Behavior Laboratory (2) Provides a beginning experience in methodology and instrumentation for assessing factors related to effective motor learning/performance. Prereq/coreq: PE 4880 or consent of instructor. Prereq: PE 4140 and/or PE 5320 or consent of instructor.

GRADUATE 5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5110 Administrative Problems in Physical Education (3)

5130 Methods in Physical Education (3)

5140 Advanced Philosophy of Sport (3)

5150 Systematic Philosophic Analyses of Sport (3)

5210 Principles and Philosophy of Physical Education (3)

5220 Readings in Physical Education (3)

5230 Supervisory Problems in Physical Education (3)

5310 Analysis of Basic Motor Skills (3)

5320 Seminar in Research Techniques in Physical Education (3)

5410-20-30 Specialization Study in a Selected Physical Education Area (1-3, 1-3, 1-3)

5500 Advanced Kinesiology (3)

5510 Selected Topics in Anatomy (3)

5550 Physical Rehabilitation (3)

5580 Physical Activity and Health (5)

5600 Applied Physiology (6)

5610 Advanced Exercise Physiology (4)

5820 Experimental Techniques in Applied Physiology (3)

5910 Scientific Bases for Physical Education (3)

5910-20-30 Seminar in Physical Education (1, 1, 1)

5910-20-30 Problems and Projects in Physical Education (1-3, 1-3, 1-3)

6000 Doctoral Research and Dissertation

6010 Seminar in Physical Education (1)

6220 Independent Research (3)

6410 Practicum in Kinesiology (3)

6510-20 Issues and Problems in Physical Education (3, 3)

6810 Seminar in Applied Physiology (2)

6840 Research Participation in Applied Physiology (1-4)

6810-20 Practicum (2, 2)

Service Program in Physical Education

The service program in physical education provides all students a program of physical education planned in accordance with their present and future needs and interests.

2701 ARC Advanced Life Saving (2)

2702 ARC Water Safety Instructor Training (2)

2703 ARC Water Safety Instructor for Handi-capped (2)

2705 Archery (2)

2707 Badminton Elementary (2)

2708 Badminton Intermediate (2)

2711 Ballet Elementary (2)

2712 Ballet Intermediate (2)

2713 Ballet Advanced (2)

2714 Basketball (2)

2715 Bowling Elementary (2)

2716 Bowling Intermediate (2)

2717 Bowling Advanced (2)

2719 Equitation Elementary (2)

2725 Field Hockey (2)

2727 Flag Football (2)

2728 Folk and Square Dance (2)

2730 Foundations of Physical Fitness (Lecture, Lab, Activity) (2)

2731 Golf Elementary (2)

2732 Golf Intermediate (2)

2734 Women's Intermediate Gymnastics (Coed) (2)

2735 Women's Intermediate Gymnastics (Coed) (2)
Recreation (853)

Professor: M.L. Peters (Chairman), Ph.D. Illinois.
Assistant Professors: M.J. Carter, Dr. Rec. Indiana; K.L. Krick, Dr. Rec. Indiana.

1000-2000-3000 Field Practice (2-3, 2-3, 2-3) Supervised practice in an approved agency offering leisure services. Each hour's credit requires enrolment in field agency. For recreation students only. Must be taken in sequence.

1100 Orientation to the Recreation Profession (3) Overview of types, functions, and relationships of delivery systems: for recreation and park services.

3100 Recreation Leadership Procedures (3) Principles and practice of recreation leadership; techniques and methods of working with individuals and groups in leisure activity. Prereq: 1000, 1100.

3140 Philosophical Foundations of Recreation (3) Examination of recreation as personal experience; theories of play; philosophies of leisure and recreation; leadership, health, government, culture, and self-realization; history of recreation movement.

3200 Planning Leisure Programs (3) Principles and methods employed in planning effective and well-balanced leisure time programs for varied groups in various settings. Prereq: 2000, 3100.

3301 Outdoor Recreation Skills and Techniques I (3) Fundamentals necessary for safe participation in outdoor recreation activities such as canoeing, rock climbing, rappelling, backpacking. Emphasis on enjoyment of natural environment without disturbance or destruction of plant and animal habitats. Prereq: Consent of instructor.

3302 Outdoor Recreation Skills and Techniques II (3) Instruction in safe conduct of outdoor recreational activities such as skiing, snowboarding, snowshoeing. Emphasis on supervisory and administrative procedures. Prereq: 1000, 2000, 3000, senior standing. S/NC.

4130 Recreation Administration (3) Introduction to recreation administration, including planning, personnel, facilities, and program services, finance, and public relations. Prereq: 3140, 3200, 3860 or consent of instructor.

4200 Survey of Recreation for Special Populations (3) Responsibility of recreation profession to minority groups whose leisure opportunities and needs may require special servicing. Prereq: 3140, 3200, 3860 or consent of instructor. GRADUATE

5000 Thesis (9)

5002 Non-Thesis Graduation Completion (3-15) 5130 Interpretation of Leisure (3) 5140 Leisure Service Delivery Systems (3) 5150 Current Issues in Recreation (3) 5240 Therapeutic Recreation (3) 5250 Implementations of Recreation Services for the Ill or Disabled (3)
3210-20-30 Field Experience II (1, 1, 1) Students observe, tutor, and perform teaching-related tasks in special education programs. S/N/C.

3310 Articulation Disorders (4) Same as Audiology and Speech Pathology 3310.

3330 Education of the Exceptional Child (3) Principles, characteristics, and special needs; local and state programs for diagnosis and care; educational, psychological, and medical services; special classes; home teaching; social and vocational guidance.

3520 Language-Speech Handicapped Child in the Classroom (3) Recognizing and understanding speech problems; observations of normal and defective speech development in children; incorporating speech improvement activities into the curriculum. For students not majoring in speech and hearing.

3710 Audiology I (3) (Same as Audiology and Speech Pathology 3710)

4000 Rehabilitation Practicum (3) Evaluation of client data in predicting rehabilitation prognosis. Prereq: 4230.

4030 The Public School Speech and Hearing Program (3) Organization, administration, and procedures.

4040 Appraisal of Speech and Language Disorders (4) Same as Audiology and Speech Pathology 4040.

4110 The Nature and Concept of Mental Retardation (3) Identification, description, and study.

4120 Education of the Mentally Retarded Child (3) Philosophy and rationale underlying the teaching and guidance of the mentally retarded; methods and materials in special and regular classes. Prereq or parallel: 4110.

4130 Education of the Brain-Inflicted Child (3) Nature of brain-inflicted child; skills for identifying educational, physical, and emotional characteristics; special educational techniques.

4150 Education Problems of Hospitalized and Homebound Children (3) School and home responsibility for physical care and social relationships, educational adjustment, vocational needs, and cooperation with related service resources.

4160 Education of Partially Sighted Children (3) Curricular adjustments and materials; home visits for parents' cooperation in medical care and special needs.

4190 Speech Development of the Hearing Impaired (3) Speech and language development, Social interaction development, and the relationship of speech development to the hearing impaired child. Prereq: Speech 2020. (Same as Audiology and Speech Pathology 4190).

4200 Practicum in Speech Development of Hearing Impaired (3) Application of theories and techniques in the development and improvement with hearing impaired children. Prereq: 4190 and consent of instructor. (Same as Audiology and Speech Pathology 4200).

4210 Language Development of Hearing Impaired (3) Systems by which formal language is presented. (Same as Audiology and Speech Pathology 4210).

4230 Language Development for the Hearing Impaired (3) Techniques; various systems by which formal language is presented. Prereq: 4210 or consent of instructor. (Same as Audiology and Speech Pathology 4220).

4230 Communication Processes for the Hearing Impaired (3) Various communicative skills required by hearing impaired person; speech and language development; auditory training, speech reading, manual language and its relation to other communication processes. (Student must acquire a degree of proficiency in use of manual language.) Prereq: Consent of instructor.

4231 Communication Processes for the Hearing Impaired II (3) Intermediate course in manual communications skills and techniques with emphasis on vocabulary development with receptive and expressive fluency. Prereq: Spec. Ed. 4230 or consent of instructor.

4240 Nature of Hearing Impairments (3) Basic principles of audiology; anatomy and physiology of hearing; nature and causes of hearing loss; methods and instrumentation for assessment of hearing level; interpretation of audiograms; selection and use of hearing aids; relation of audiologic services to medical and other rehabilitative disciplines. Observations and practicum.

4250 Introduction to the Psychology and Education of the Hearing Impaired (3) Offered for those planning to enter field of teaching the deaf and hard-of-hearing. Review of history of education of the deaf. Research studies relating to psychology, social adjustment, and learning of the deaf. Survey of professional literature in area of deaf child and adult. (Same as Audiology and Speech Pathology 4250).

4280 Curriculum Development in Elementary and Secondary Schools for the Hearing Impaired (3) Adaptation of curriculum development and methods in public school education to meet needs of deaf and hard-of-hearing students in residential and integrated settings.

4290 The Teaching of Reading to Hearing Impaired Children (3) Basic reading activities, developmental approaches, theories, and specialized materials for curricula in teaching reading.

4310 Stuttering (3) (Same as Audiology and Speech Pathology 4310).

4320 Clinical Practice in Speech Pathology (1-6) (Same as Audiology and Speech Pathology 4320).

4330 Clinical Practice in Speech Pathology (1-6) (Same as Audiology and Speech Pathology 4330).

4340 Clinical Practice in Speech Pathology (1-6) (Same as Audiology and Speech Pathology 4340).

4341 Clinical Practice in Speech Correction in the Public Schools (3) Prereq: Audiology and Speech Pathology 4320-4340. Special Ed. 4300 and consent of instructor. S/N/C.

4342 Seminar in Speech Correction in Public Schools (3) Prereq: Audiology and Speech Pathology 4320-4340. Special Ed. 4300 and consent of instructor.

4350-80-70 Problems in the Education of Exceptional Children (3, 3, 3) Prereq: Consent of instructor.

4351-67-71 Practicum in Special Education (3, 3, 3) Students prepare and deliver units of instruction in special education programs. S/N/C.

4400 Voice Disorders (4) (Same as Audiology and Speech Pathology 4400).

4440 High School Program for the Mentally Retarded (3) Trends, issues and research relating to core and work study programs.

4450 Clinical Practice in Audiology (1-6) (Same as Audiology and Speech Pathology 4450).

4460 Clinical Practice in Audiology (1-6) (Same as Audiology and Speech Pathology 4460).

4470 Clinical Practice in Audiology (1-6) (Same as Audiology and Speech Pathology 4470).

4610 Nature and Characteristics of Learning and Behavior Disorders (3) Forms of academic and socially disturbing behavior, degrees of severity, possible causes, and relationships to each other. Relationships with respect to personality characteristics and developmental factors interpreted through behavioral and physiological test as well as practical situations in which learning and behavior disorders may occur.

4620 Education of the Emotionally Disturbed Child (3) Managing behaviors, models for instruction, teaching techniques and materials, and teacher-pupil family interpersonal relationships as basic to academic achievement for the pupil. Prereq: 4610.

4630 Practicum in Residential Settings Serving Children with Disturbing Behavior (3) Practice in scientifically identifying, observing, and recording disturbing behaviors. Initiating behavior changes regarding academic and social behaviors. To perform in a tutorial capacity within a residential class. Particular emphasis in practice in individualizing instruction for learning and behavior problem children within the regular classroom setting. Discussion and evaluation of relevant methods and materials unique to each teaching situation. Prereq: 4610 and 4620 or consent of instructor.

4640 Practicum in Public School Systems Serving Children with Learning and Behavior Problems (6) Academic tutoring in a teacher's aide capacity within a regular classroom. Particular emphasis in practice in individualizing instruction for learning and behavior problem children within the regular classroom setting. Discussion and evaluation of relevant methods and materials unique to each teaching situation. Prereq: 4610 and 4620 or consent of instructor.

4700 Audiology for Educators of the Deaf (4) (Same as Audiology and Speech Pathology 4700).

4719 Audiomtery Laboratory (1) (Same as Audiology and Speech Pathology 4719).

4720 Audiology II (4) (Same as Audiology and Speech Pathology 4720).

4740 Diagnostic and Remedial Approaches in Special Education and Rehabilitation (3) Critical examination of specialized tests and methods employed in measurement of educational needs of children and adults who are mentally retarded, learning disabled, multiple handicapped or physically handicapped.

4810 Student Teaching Mental Retardation (3) Prereq: Major in education of mental retardation. S/N/C.

4811 Student Teaching Mental Retardation (3) Prereq: Major in education of mental retardation. S/N/C.

4840 Educational Problems of the Cerebral Palsied Child at Home and School (3) Physical, social, and educational needs of the cerebral palsied; evaluation techniques; related services.

4850 Eye Problems Encountered by the Teacher (3) Eye anatomy and hygiene; common diseases and defects; testing and treatment; educational adjustments for specific eye conditions; related service resources.

4870 Student Teaching with Hearing Impaired Children (6) Supervised practicum with preschool, day school, and residential pupils. S/N/C.

4871 Practicum with Hearing Impaired Children (6) S/N/C.

4880 Student Teaching in Special Education (1-6) Application for student teaching must be filed not later than January 1 of the academic year preceding the academic year in which the student teaching is to be taken. Prereq: 4110, 4120, 4130, 4150, 4351, 4361, 4740, S/N/C.

4881 Student Teaching in Special Education (1-6) Application for student teaching must be filed not later than January 1 of the academic year preceding the actual experience. Prereq: 4110, 4120, 4130, 4150, 4351, 4361, 4740, S/N/C.

4882 Student Teaching in Special Education (1-6) Application for student teaching must be filed not later than January 1 of the academic year preceding the actual experience. Prereq: 4110, 4120, 4130, 4150, 4351, 4361, 4740, S/N/C.

4921 Student Teaching in Crippling and Special Health Conditions (1-6) Observation and supervised practicum in home, hospital, and classroom. S/N/C.

4922 Student Teaching of the Educable Mentally Retarded (3) Observation and supervised practicum. S/N/C.

4923 Student Teaching of the Partially Seeing (3) Observation and supervised practicum in special and regular classes. S/N/C.

4924 Student Teaching of the Emotionally Disturbed (3) Individual tutoring and classroom observation and teaching. Prereq or parallel: Educational Curriculum and Instruction 4720 or 4820. S/N/C.
4930 Aural Rehabilitation: Speechreading and Auditory Training (4) (Same as Audiology and Speech Pathology 4930.)

4940 Advanced Aural Rehabilitation (4) (Same as Audiology and Speech Pathology 4940.)

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5040 Advanced Clinical Practice in Audiology (1-6)

5100 Orientation to Rehabilitation (3)

5110 Medical Aspects of Rehabilitation Counseling (3)

5111 Psychology of Mental Retardation (3)

5112 Psychology of the Severely Mentally Retarded (3)

5113 Advanced Curriculum for the Mentally Retarded (3)

5115 Caseload Management in Rehabilitation (3)

5120 Psycho-Social Aspects of Disability (3)

5121 Job Development and Placement in Rehabilitation (3)

5130-40 Seminar in Rehabilitation (3, 3)

5141 Diagnostic Vocational Evaluation in Rehabilitation (3)

5142 Prognostic Vocational Evaluation in Rehabilitation (3)

5143 Interpretation of Vocational Evaluation Data in Rehabilitation (3)

5144 Development and Supervision of Client Evaluation Programs (3)

5145-46-47 Practicum in Rehabilitation (3, 3, 3)

5150-60 Internship in Rehabilitation (9, 9)

5170 Systematic Human Relations Training I (3)

5180 Approaches to Rehabilitation Counseling (3)

5220 Linguistics in the Education of the Hearing Impaired (3)

5240 Seminar in Language Remediation for the Hearing Impaired (3)

5260 Education of Gifted Children (3)

5280 Seminar on Educational Implications of Language Deficiency (3)

5310-20-30 Manual Communication (2, 2, 2)

5380 Cerebral Palsy (3)

5390 Cleft Palate (3)

5400 Assessment and Remediation of Learning Disabilities (3)

5401 Prescriptive Teaching for Children with Learning Disabilities (3)

5402 The Exceptional Child in the Regular Classroom (3)

5403 Resource Teachers for the Handicapped (3)

5410 Instructional Media for the Handicapped: Design, Production, and Evaluation of Prototypical Curriculum Materials for the Deaf (9)

5450-60-70 Experience in Teaching and Supervision of Exceptional Children (1-6, 1-6, 1-6)

5490 Educational and Vocational Guidance of the Deaf and the Hard-of-Hearing (3)

5510-20-30 Administrative Practicum or Problems in Institutional Care of Children (3, 3, 3)

5540 Seminar in Language Pathology (3)

5550-60-70 Problems in the Education of Exceptional Children (3, 3, 3)

5620 Counseling Parents of Exceptional Children (3)

5630 Psychology of the Exceptional Child (3)

5700 Evaluation and Mobilization of Community Resources (3)

5710 Medical Aspects of Disability I (3)

5720 Medical Aspects of Disability II (3)

5730 Vocational Assessment in Disability Evaluation (3)

5740 Disability and Work in Society (3)

5750 Principles and Problems of Disability Evaluation (3)

5760 Seminar: Functional Capability Assessment (3)

5770-71 Current Problems in Disability Claims Evaluation (1,3, 1-3)

5790 Career Development: Workshop (1-6)

5820 Curriculum Development Applied to Programs for the Hearing Impaired (3)

5830 Seminar: Issues and Theories in the Education of the Exceptional Child (3)

5910-20-30 Problems in Lieu of Thesis (3, 3, 3)

5970 Juvenile Delinquency and the School (3)

Vocational-Technical Education (988)

Professors: J.J. Matthews (Head), Ph.D., Arizona State; R.J. Woodin (Emeritus), Ph.D., Ohio State; E.R. Smith, Ph.D., Ohio.

Associate Professors: W.A. Cameron, Ph.D., Ohio State; M.D. Miller, Ed. D., Oregon State.

3000 Introduction to Vocational Education (1) Introductory and exploratory experiences concerned with teaching careers in all areas of vocational education. Includes visitation within a vocational setting.

4750 Utilization of Instructional Media (3) (Same as Curriculum and Instruction 4750 and Library and Information Science 4750.)

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5010-21-31 Problems in Lieu of Thesis (3, 3, 3)

5020 Competency Based Vocational Education (3)

5040 Guidance and Pupil Personnel Services in Education (3)

5180-90-5200 Educational Specialist Research and Thesis (3, 3, 3)

5260 Issues and Trends in Vocational-Technical Education (3)

5270 Continuing Education in Vocational-Technical Education (3)

5270 Placement, Follow-up, and Evaluation Procedures in Occupational Education (3)

5300 Occupational Program Development for Disadvantaged Persons (3)

5310 Supervision of Vocational-Technical Education (3)

5850-60-70 Problems in Vocational-Technical Education (1-6, 1-6, 1-6)

6000 Doctoral Research and Dissertation

6040 Seminar in Vocational-Technical Education (1, 1, 1)

6210 Curriculum Planning in Vocational-Technical Education (3)

6220 Program Planning and Development in Vocational-Technical Education (3)

6230 Evaluation of Vocational-Technical Education Programs (3)

6310 Administration of Vocational-Technical Education (3)

6411-12-13 Internship in Vocational-Technical Education (3, 3, 3)

Agricultural Education (056)

Professors: G.W. Wiegers, Jr., Ed.D., Missouri; N.E. Fitzgerald (Emeritus); M.S. Cornell; A.J. Paulus (Emeritus), Ph.D., Cornell.

Associate Professors: D.G. Craig, Ed.D., Cornell; J.D. Todd (Chairman), Ed.D., Illinois.

3450 Agricultural Experience and Future Farmers of America Programs (3) Prereq: Consent of instructor.

3460 Methods in Teaching Agriculture (3) Prereq: Consent of instructor.

3470 Program Development and Adult Education in Agriculture (3) Prereq: Consent of instructor.

4350-60 Student Teaching in Agricultural Education (8-12) Offered in off-campus centers. Application must be filed no later than final quarter of junior year. Courses must be taken concurrently. Prereq: 3450, 3460, 3470, consent of instructor. Undergraduate credit only. S/NC.

4510-20-30 Problems in Agribusiness Education (1-6, 1-6, 1-6) Total not more than 9 hrs.

4710-20-30 Seminar in Agricultural Education (1, 1, 1) Prereq: 4350 or consent of department head.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5011-21-31 Problems in Lieu of Thesis (3, 3, 3)

5110-20-30 Current Literature (1, 1, 1)

5320-30 Agricultural Education in Off-Farm Agricultural Occupation (3, 3)

5340 Agricultural Education for First-Year Teachers (3)

5470 Adult Education in Agriculture (3)

5480 Supervision of Student Teaching in Agricultural Education (3)

5490 Supervised Occupational Experience in Agriculture (3)

5620 Teaching Agricultural Mechanization in Vocational Agriculture (3)

5750-60-70 Special Problems in Agricultural Education (3, 3, 3)

Business Education (207)

Professors: G.A. Wagoner (Chairman), M.S., Indiana; E.W. Davis (Emeritus), M.A., New York; E.R. Smith, Ph.D., Ohio State.


4010 Principles of Business Education (3) Historical background and present status; principles of vocational education applied to business education; guidance activities of business teachers.
4120 Teaching General Business Subjects (2) Materials, evaluation procedures and recent research in subject fields.

4130 Teaching Typewriting (2) Materials, methods, evaluation procedures and recent research in subject fields.

4140 Teaching Shorthand (2) Materials, methods, evaluation procedures and recent research in subject fields.

4150 Teaching Bookkeeping (2) Materials, methods, evaluation procedures and recent research in subject fields.

4200 Curriculum Construction in Business Education (3) Aims, principles, practices, and problems involved in construction of business curricula for various types of educational institutions in which business subjects are taught.

4610-20-30 Problems in Business Education (3, 3, 3) Current business education problems, viewpoints of leaders in field, special attention to problems of those enrolled.

4611 Problems in Business Education (1/2)

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5011 Problems in Lieu of Thesis (3)

5110 Graduate Seminar: Current Problems (3)

5111-12-13 Graduate Seminar: Current Problems in Business Education (1, 1, 1)

5120 Graduate Seminar: Tests and Measurements (3)

5130 Graduate Seminar: Guidance (3)

5140 Organization and Operation of Area Vocational-Technical Schools (3)

5410-20-30 Practicum in Business Education (2, 2, 2)

5510 Evaluation of Research in Business Education (3)

5611-21 Problems in Business Education: Typing (3, 3)

5612-22-32 Problems in Business Education: Shorthand (3, 3, 3)

5614 Methods and Materials for Vocational Office Education (3)

5623-33 Problems in Business Education: Bookkeeping and Accounting (3, 3)

5624 Problems in Business Education: Clerical Practice (3)

5615-25-35 Problems in Business Education: General Business (3, 3, 3)

5618 Organization and Management of Vocational Office Education Program (3)

5628 Problems in Business Education: Administration (3, 3, 3)

6110-20-30 Current Issues in Business Education (3, 3, 3)

6210-20-30 Advanced Studies in Business Education (3, 3, 3)

6410 Higher Education for Business (3)

Distributive Education (273)

Professor: C.B. Coakley (Chairman), Ph.D. Wisconsin.

Assistant Professor: D.E. Mcnelly, Ed.D Missouri.

4110 Student Teaching in Distributive Education (9) Full-time, supervised experience in classroom teaching, coordination, club work, and adult education. Prereq: 4310, 4320, Education 3030; Educational Psychology 3610; 4140 or equivalent. Undergraduate credit only. S/NC.

4120 School and Community Relationships for the Teacher Coordinator (6) Content dependent upon teaching assignment; human relations evolving from school, parent, business, and other community contacts. Must be taken with 4110. Undergraduate credit only. S/NC.

4130 Areas of Distribution (3) Marketing, production or service technology, social skills, basic skills, and distribution as these areas affect the distributive education curriculum in secondary and post-secondary programs.

4140 Supervised Distributive Experience (3) Minimum 200 hours experience in approved distributive business; concurrent academic project.

4310 Organization and Operation of Distributive Education Programs (3) Background and development needs, federal and state legislation, curriculum implications; establishing, evaluating, reporting, and improving the programs.

4320 Methods and Materials in Distributive Education (3) Prereq: 4310 or consent of instructor.

4330 Coordination Techniques in Distributive Education (3) Selecting training agencies; job analysis; selecting and briefing the training supervisors; advisory committees; adult education and other community services. Prereq: 4310 and 4320.

4510-20-30 Problems in Distributive Education (1-3, 1-3, 1-3) Selected research problems in teaching and coordinating distributive education programs. May be repeated. Maximum 6 hrs credit each.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5110 Administration and Supervision of Distributive Education (3)

5120 Organizing and Teaching Adult Distributive Education (3)

5210-20-30 Special Problems in Distributive Education (3, 3, 3)

5616-26-36 Problems in Distributive Education: Retailing (3, 3, 3)

Home Economics Education (490)

Professors: N.P. Logan (Chairman), Ed. D. Tennessee; I. Brown (Emeritus), Ph.D. Ohio State.

Associate Professors: J.H. Mcminn, Ph.D. Florida State; S.W. Miller, Ph.D. Ohio State.

2240 Introduction to Teaching Vocational Home Economics (3) Introductory and exploratory experiences accompanied by a teaching career in vocational home economics. Includes observation and participation within various educational and vocational settings.

3240 Strategies of Teaching Home Economics (4) Teaching strategies, methods, techniques and use of media. Field experience included. Prereq: 2240.

4240 Curriculum Development in Vocational Home Economics (4) Planning of curriculum and design of instruction for the classroom. Prereq: 2240. To be scheduled one of the two quarters immediately preceding student teaching.

4310 Student Teaching (8) Underlying philosophy, techniques, and materials: relation to school program and community. S/NC.

4509 Field Experience in Home Economics Related Occupations (4) Supervised field experience and seminar in teaching of occupations which utilize home economics skills and knowledge. Prereq: Consent of instructor. S/NC. May be repeated.

4610 Student Teaching (9) Open to seniors or graduate students who have successfully completed one year's study at The University of Tennessee. Off-campus teaching centers (minimum of eight weeks). Prereq: 2240, 3240, 4240; coreq: 4310. S/NC.

4718-28-38 Honors: Home Economics Education (3, 3, 3) For juniors and seniors showing special ability and interest in home economics education. Prereq: Consent of department head.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5130 Furthering Good Human Relationships in the Classroom (3)

5220 Evaluation in Home Economics (3)

5310 The Problem Method of Teaching (3)

5440 Curriculum Development and Implementation in Family Relationships Instruction (3)

5520 The Teaching of Home Economics in College (3)

5530 Organization of the Homemaking Curriculum in Secondary Schools (3)

5610 Supervision of Home Economics in the Public Schools (3)

5620 Wage Earning Programs in Home Economics (3)

5710-20-30 Special Problems for Non-Thesis Students (3, 3)

5810-20-30 Problems in Home Economics Education (1-3, 1-3, 1-3)

5910-20 Seminar in Home Economics Education (3, 3)

Industrial Education (547)

Professors: J.L. Reed (Chairman), M.S. Oklahoma; R.W. Haskell, Ph.D. Purdue.

Associate Professors: J.D. Biles, Ph.D. Missouri; G.D. Cheek, Ph.D. Kansas; D.V. Brown, P.E., Ed.D. Utah State; R.R. Hanson, Ph.D. Purdue.


124 Welding and Cutting Practices (3) Prereq: 1642.

1610 Engine Analysis (3) Designed to give experimental laboratory experience in automotive technology. Engine tune-up and engine performance. Techniques and procedures are studied and practiced.

1620 Graphic Communications (3) Drafting as a means of communication in technology. Orthographic and multi-view drawing, conventional practices, pictorial techniques and applications of photography.

1630 Basic and Applied Electricity (3) Operation and characteristics of electrical systems and devices. Construction of demonstration apparatus and various electrical projects involving function of different types of circuits.

1642 General Metals (3) Basic course dealing with processes, equipment, materials, products, and organization of metal-working industries. Involves processes in machining, foundry, sheetmetal, and fabrication.

1661 General Woodworking (3) Basic course dealing with processes, tools, equipment, products, organization of woodworking industry. Stress on importance of safety and using hand tools and basic machinery.

2010-20-30 Basic Experiences in Trade and Industrial Education (3, 3, 3) Methods and materials of instruction. 3 periods.
2621 Power Mechanics (3) Includes various prime movers, methods of utilization, distribution and transmission of power with internal combustion engines. Maintenance and repair of small engines is stressed.

2621 Architectural Graphics (3) Introduction to fundamentals of graphic representation and residential architecture. Light construction principles are stressed. Stress is placed on working drawings for a residential building are developed. Prereq: 1620.

2631 Fundamentals of Applied Electronics (3) Semi-conductors, electrical circuits, including amplifiers, oscillators, switching and timing circuits, applications including sound in video systems, relays, control and industrial devices. Prereq: 1630.

2641 Machine Tool Processes (3) Introductory course of the function, care, set-up, operation and theory of basic machine tools. Prereq: 1642.

2652 General Plastics (3) Characteristics of thermoplastics and thermal setting materials, methods of determination and resin conversion to finished product.

2660 Furniture and Cabinet Construction (3) Comprehensive study of cases and carcass construction with emphasis placed upon furniture and built-ins. Prereq: 1661.

3010 Related Science, Mathematics, and Technology in Occupations (15) Credit may be earned only through examination. Applicants must show evidence of proficiency in related science, mathematics, and technology. Credit will be based upon the examination. Prereq: 1661.

3020 Manipulative Skills in Occupations (15) Credit may be earned only through examination. Applicants must show evidence of proficiency in related sciences. Credit will be based upon the examination. Prereq: 1661.

3030 Knowledge of Related Subjects in Occupations and Personal Qualifications (15) Credit may be earned only through examination. Applicants must show evidence of proficiency in related sciences. Credit will be based upon the examination. Prereq: 1661.

3040-41-42 Physical Testing Technology (3, 3, 3) Skills and techniques involved in radiography, metallurgy, tensile and compression testing, and other destructive and non-destructive testing methods. Undergraduate credit only.

3050 Welding, Brazing, Cutting, and Related Processes (15) Major types of welding equipment and fundamental techniques of welding. Undergraduate credit only.

3060-81 Electronic Technology (3, 3, 3) Basic principles and application of electronics. Undergraduate credit only.

3080-81 Machining of Metals (3, 3) Introduction to machine shop technology and procedures which provides information and practice in using basic machine tools. Undergraduate credit only.

3110 History and Philosophy of Industrial Education (3)

3210-20-30 Part-time Programs in Cooperative Industrial Training (3, 3, 3) Principles of organization, methods, and materials.

3310 Shop Organization and Management (3)

3320-30 Materials and Methods for Teachers of Shop and Related Subjects (3, 3)

3340 School Shop Safety (3)

3610 Development and Utilization of Advisory Committees (3) Philosophy and rationale for use of craft advisory committees. Their selection, organization, implementation and utilization.

3612 Automotive Mechanics (3) Advanced laboratory experience in tune-up, overhaul, transmis- sion, and the suspension system. Prereq: 1610.

3621 Industrial Graphics (3) Auxiliary views, sections, conventional practices, fillets, dimensions, working drawings and machine drafting. Prereq: 1620.

3632 Industrial Electricity and Equipment Control (3) Involves construction and installation of industrial electrical equipment both single and multiple phase: production, use and control of electric current. Emphasis placed on circuit tracing, installation, maintenance, and trouble connecting industrial equipment. Prereq: 1630.

3640 Advanced General Metals (3) Provides experiences in areas of hot and cold forming of metals, molding and metal finishing, tool grinding, heat treatment, fabrication and precision measurement. Prereq: 2641.

3651 Plastic Processing (3) Plastics production equipment and related product design and processing of plastics. Prereq: 2652 and 1661.

3662 Construction Methods and Materials (3) Materials, methods, and equipment used in residential construction, including location and excavation, foundation, framing, roofing, interior and exterior finishes, installation and acceptable practices in assembly. Prereq: 1661.

3672 Graphic Arts Reproduction Processes (3) Graphic arts skills in printing and duplicating techniques and other modes of graphic communication.

4073-74-75 Tool and Machine Design (3, 3, 3) Tool and machine design, calculations, design systems, and designing procedures. Undergraduate credit only.

4090 Numerical Control (3) Tooling, manual programming, automatic programming, automatic programming language and use of automatic program as a computer. Undergraduate credit only.

4110 Foremanship Training by the Conference Method (3)


4210 Methods of Teaching Shop and Related Subjects (3) Undergraduate credit only.

4220 Vocational Technical Laboratory Equipment Maintenance (3) Understanding of preventive maintenance, maintenance and calibration of instruments and power equipment used in industrial education shops.

4310-20 Curriculum Building in Trade and Industrial Subjects (3, 3) Arranging course material in trade subjects, following up results of job analyses, preparing checking sheets and individual job sheets in both trade and related subjects. Prereq or coreq: 4120.

4350-60-70 Problems in Industrial Education (3, 3, 3)

4410 Directed Teaching (6) Observation of all types of trade and industrial classes; preparation of lesson plans and supervised teaching in at least two types. Prereq: Senior standing in industrial education. Prereq or parallel: 4210. 1 hr and 5 periods. Undergraduate credit only. S/N/NC.

4420 Directed Teaching (9) Guided observation and teaching in trade, industrial, and/or technical programs in secondary, area adult, post secondary, and junior college industrial vocational and technical curricula. Undergraduate credit only. S/N/NC.

4510-11-12 Seminar in Industrial Education (3, 3, 3) Educational innovations, current events, problems, and other topics associated with the field of industrial education.

4520-21-22 New Developments in Industrial Education (3, 3, 3) Developments, press problems, and recent trends in field of industrial education as presented by committee chairmen, in conjunction with knowledgeable resource personnel.

4621 Special Topics in Drafting (3) Industrial practices in specialized areas of drafting selected for the individual student. Prereq: 6 hrs drafting.


4670 Manufacturing Processes (3) The manufacturing processes of industry and their relationship to careers. Prereq: 2621, 2641, 2660, 3651, or consent of instructor.

4671 Materials and Processes (3) Organic and inorganics materials and processes used to produce finished products. Content, curriculum and techniques of laboratory operation. Prereq: Consent of instructor.

4682 Power and Energy (3) Development, control, transmission, conversion, interrelationship of power sources; content, curriculum, and techniques of laboratory operation. Prereq: Consent of instructor.

4690 Visual Communications in Industrial Arts (3) Methods of developing and transmitting ideas and information as related to industry and society. Content, curriculum and techniques of laboratory operation. Prereq: Consent of instructor.

4691 Course Construction in Industrial Arts (3) Advanced work in the selection and arrangement of course content. Emphasis upon instructional objectives, project selection and informational assessments and evaluation. Prereq: Consent of instructor.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5110-20-30 Administration and Supervision of Industrial Education (3, 3, 3)

5140 Organization and Operation of Area Voca- tional-Technical Schools (3)

5210-20-30 Special Problems in Industrial Education (3, 3, 3)

5310 Method of Research in Industrial Education (3)

5410 Improving Teachers in Service (3)

5420 Advisory Committees and Apprentice Train- ing (3)

5430 Vocational School Administration and Man- agement (3)

5440 Advanced Methods of Teaching Skills and Technical Information (3)

5510-20-30 Seminar in Industrial Technical Educa- tion (3, 3, 3)

5540 New Developments in Industrial Technical Education (3)
College of Engineering

Fred N. Peebles, Dean
William A. Miller, Associate Dean
William K. Stair, Associate Dean

The engineer applies mathematical and scientific knowledge in planning economical ways of providing materials and energy in forms that are useful to humankind. In today's technology-based society, everyone feels the effects of the engineer's plans and decisions. Hence, there is a continuing and urgent need for engineering graduates who possess a thorough understanding of mathematical and scientific principles, who can apply these principles to the solution of practical problems, and who can view the solutions in their overall social perspective so that the actions that they recommend will be truly beneficial. It is the purpose of the College of Engineering to educate men and women to the high levels of technical competence and social understanding that will enable them to fulfill their responsibilities as professional engineers.

Graduates of the B.S. curriculum offered by the college may enter directly a position in industry, government, or private practice or may pursue advanced study in graduate school. Their professional activities include research, development, design, operations analysis, construction, production supervision, and technical sales. Many practice their profession in Tennessee; but engineering knows no geographical bounds, and graduates of the college serve throughout the nation and in other countries as well.

The college had its beginnings early in the history of the University when surveying was introduced into the curriculum in 1838. In 1877 civil engineering was first recognized as a curriculum. The first mechanical course appeared in about 1847; other mechanical courses followed, and in 1877 this body of studies was designated as mechanical engineering. By 1877 mining had found a place in the University, but it was later dropped. Electrical engineering appeared in about 1896, when a Professor of Physics and Electrical Engineering was appointed. Although metallurgy was announced in the catalog as early as 1888, it was dormant until it was revived in the Department of Chemical Engineering shortly after 1940. A separate degree in metallurgical engineering was authorized in 1957. Although the rudiments of chemical engineering appeared in the form of industrial chemistry shortly after 1900, a full chemical engineering program and a department were not established until 1936. Industrial engineering was introduced in 1940, was dropped for a time during the war years, and was reinstated in 1947.

Nuclear engineering was established as a separate curriculum in 1957 in response to the rapidly increasing demand for engineers with a knowledge of nuclear phenomena. Engineering physics, a program operated jointly with the physics department, first appeared as an engineering curriculum in about 1942. Curricula in aerospace engineering and engineering mechanics were added in 1966, and a curriculum in engineering science was added in 1967.

The first dean of the college, Professor Charles E. Ferris, was appointed in 1912. Prior to that time the engineering programs were organized as a school, with a chairman of the faculty. Other former deans are Nathan W. Dougherty, who served from 1940 to 1956, Armour T. Granger, who served from 1956 to 1965, and Charles H. Weaver, who served from 1965 to 1968.

The Cooperative Engineering Program was established in 1926. The University of Tennessee was one of the early pioneers in this valuable type of education, which originated at the University of Cincinnati in 1905. A Cooperative Engineering Scholarship Program was formally established in 1957, with emphasis on participation by students of superior ability. A conventional cooperative program, open essentially to all students in good standing in the college, was re-established in 1967.

The Engineering Experiment Station was established in 1922.

The college has 10 major undergraduate curricula in which a student may specialize: aerospace, chemical, civil, electrical, industrial, mechanical, metallurgical, nuclear engineering, engineering physics and engineering science.

Agricultural engineering is taught in the College of Agriculture with facilities located on the Agricultural Campus. The agricultural engineering curriculum is offered cooperatively by the College of Agriculture and the College of Engineering. Details of the curriculum may be found in the College of Agriculture section of this catalog.

Facilities

The College of Engineering is housed in Ferris, Estabrook, Perkins, Dougherty and Berry Halls, and the Nuclear Engineering Building, all located on the southeastern end of the campus.

Ferris Hall. This building houses the offices, laboratories, and shops of the electrical engineering department and the Water Resources Laboratory. There is also an auditorium with a seating capacity of about 300 persons, and a remote input/output terminal connecting with the University of Tennessee Computing Center.

Estabrook Hall. Some operations of the Departments of Civil Engineering and Engineering Science and Mechanics, and of the Engineering Experiment Station are carried on in Estabrook Hall.

Perkins Hall. This building houses the Departments of Civil Engineering, Engineering Science and Mechanics, Industrial Engineering, and the Office of the Dean of the College of Engineering. The building contains laboratories, drafting rooms, and a small auditorium with a capacity of about 80 persons.

Nuclear Engineering Building. This building houses operations of the nuclear
Admission to the Cooperative Engineering Program is open to any student in the college (or in agricultural engineering in the College of Agriculture) who is in good standing, whose record indicates capability and dependability, and who is accepted as a co-op employer. In general, work periods begin at the end of the second or third quarter of the freshman year and continue for seven alternating work and school cycles. Applicants must be able to schedule a minimum of five such cycles before the beginning of their senior work in order to qualify for co-op placement.

Academic schedules for co-op students are shown elsewhere in this section. A brochure with further details may be obtained from the Office of the Coordinator, Cooperative Engineering Program, College of Engineering.

**Binary Program**

A binary program in engineering is available. The college has agreements with a number of liberal arts colleges to conduct a five-year program, three years of which will be given at the liberal arts college and the last two years at The University of Tennessee in engineering. At the end of the fifth year, the college will award a baccalaureate degree in one of the branches of engineering.

Institutions cooperating with The University of Tennessee in offering this Liberal Arts-Engineering 3-2 Binary Plan include:

- Belmont College, Nashville, Tennessee
- Bethel College, McKenzie, Tennessee
- Carson-Newman College, Jefferson City, Tennessee
- David Lipscomb College, Nashville, Tennessee
- East Tennessee State University, Johnson City, Tennessee
- King College, Bristol, Tennessee
- Knoxville College, Knoxville, Tennessee
- Maryville College, Maryville, Tennessee
- Middle Tennessee State University, Murfreesboro, Tennessee
- Southwestern University, Memphis, Tennessee
- Tennessee Wesleyan College, Athens, Tennessee
- Union University, Jackson, Tennessee

Questions about courses to be taken in preparation for transfer to The University of Tennessee may be directed to the dean of engineering.

**Graduate Program**

**GENERAL**

Graduate programs leading to the degree of Master of Science are offered in all areas of study, and the degree of Doctor of Philosophy is offered in eight major subjects: aerospace engineering, chemical engineering, electrical engineering, engineering science, mechanical engineering, metallurgical engineering, nuclear engineering, and polymer engineering. A Master of Engineering degree focusing on engineering design and professional practice is offered in aerospace, civil, electrical, environmental, industrial, mechanical, and nuclear engineering.

Information concerning graduate programs is given in the Graduate Catalog.

**Masters of Science Program in Engineering Administration**

A program leading to the degree of Master of Science with a major in engineering administration is offered with the aim of providing education for graduate engineers in the organization and administration of work for better engineering at a level which requires understanding of such areas as marketing, finance, and industrial relations. It must be emphasized that this is an engineering program, directed toward preparing individuals for line management positions in construction, design, development, manufacturing, etc., where both technical and non-technical factors exert significant influence on the success of a given activity. The program does not provide the opportunity for in-depth study of any of the traditional areas of business administration, and students with such interests are advised to consider graduate programs available in the College of Business Administration. Policy direction and administration of the program are provided by an Engineering Administration Committee, consisting of representatives from participating departments in the College of Engineering and Business Administration, and a chairperson appointed by the dean of engineering. Further information is provided in the Graduate Catalog.

**Graduate Program at the UT Space Institute**

At The University of Tennessee Space Institute near Tullahoma, graduate-level courses are offered in engineering fields such as aerospace, electrical, and mechanical engineering, and in mathematics and physics. Current programs lead to the M.S. and Ph.D. degrees. Many members of the faculty of the Space Institute are also members of the faculty at The University of Tennessee, Knoxville.

**Engineering Experiment Station**

F.N. Peebles, Director
William K. Stair, Associate Director

The management of the Engineering Experiment Station is vested in the president of the University, the dean of engineering, the director, and the associate director.

An advisory committee consisting of the heads of the departments of the college and the heads of departments in allied scientific fields may assist in determining policy and procedures. Members of the faculty of the college are available for consultation and advice in technical matters.

The station is organized to conduct research underlying engineering practice and to aid in the development of the state's resources and industries insofar as funds available will permit. Inquiries from industries concerning technical questions which interest them are welcomed.

The station also makes special arrangements with any person or company to study any technical question within the
capacity of its resources, and to report the results exclusively to the company requesting the study. In such cases, the whole expense will be carried by the parties requesting the investigation. Bulletins are published from time to time giving the results of various investigations. Upon request, unpublished results of current studies are made available to interested parties.

**Curricula in Engineering**

**NATIONAL ACCREDITATION**

Since 1936 engineering programs at institutions of higher learning have been accredited by the Engineers Council for Professional Development (ECPD), an organization formed by many engineering societies. Currently accredited engineering curricula at UTK include aerospace, agricultural, chemical, civil, electrical, engineering science, industrial, mechanical, metallurgical, and nuclear. The advanced professional programs are also accredited in civil, electrical, environmental, mechanical, and nuclear engineering.

**COURSE LOAD**

The maximum number of hours which can be taken by an undergraduate without special permission is 19 hours. The dean of engineering must give permission to take 20 hours or more.

**GENERAL REQUIREMENTS**

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

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

**Transfer Credit.** Every attempt will be made to give maximum credit for courses taken elsewhere and transferred to the college. Discussions concerning the evaluation of transfer credits should be conducted with the head of the department in which the student proposes to transfer following the evaluation of transfer credits by the Admissions Office.

**Program for Second B.S. Degree.** Upon approval by the dean of engineering and the Committee on Degrees of a program of study recommended by the major engineering department, a student who already holds a bachelor’s degree may obtain the appropriate first degree in engineering upon completion of a minimum of 45 quarter hours credit. The preceding University regulations on residence and quality point averages shall apply.

**Satisfactory/No Credit Courses.** An undergraduate engineering student may count toward a degree up to 12 quarter hours obtained by Satisfactory/No Credit (S/NC) grading. Such courses must be used for humanistic-social (non-technical) elective credit in engineering or must be engineering courses using only this type of grading.

**Humanities and Social Studies Electives.** The college assumes an obligation to include in each of the engineering curriculum a means whereby students gain greater insight into their interaction with society, culture, behavior patterns, history and governance; and to provide a basis for the appreciation of and the ability to deal with complex interactions between technology and society in the contemporary world. Engineers are now working with new constraints that demand a consciousness of the social and political implications of their work. They are interacting with the public in ways that they cannot imagine what the public demands greater participation in the decision-making process concerning the utilization of technology. Because of the significance of this technology-society interaction, engineers and students are encouraged to seriously consider their selection of required electives in this area.

Students are urged to plan a non-technical elective program which will enhance their own interests and objectives. It is recognized that, just as engineers show individual preference for concentration in one of the areas of engineering, they differ in their interests in the many areas of the humanities and social sciences. However, these subjects should be pursued with sufficient depth in terms of courses to permit a reasonable level of comprehension of the selected areas. In order to increase the effectiveness of this interest and to meet ECPD accreditation guidelines, the Humanities and Social Studies Electives Committee of the college work has provided a list of approved courses in the form of 13 coherent groups of courses identified in three broad areas as follows:

Area I. Human, Economic, and Political Relationships to Engineering

A. Governance and Political Science
B. Economics
C. Sociology and Psychology
D. Human Values

Area II. Society—Its Culture, History and Literature

A. Fine Arts
B. American Culture
C. History
D. Literature
E. Anthropology

Area III. Technology and Society

A. Human Technology
B. Technology Assessment
C. Communication
D. Resources

Courses in the list which follow are selected by the committee with revisions as course offerings and needs change. They are recommended as satisfying the non-technical (humanistic-social) electives requirement in the various curricula of the college. However, the structure and permissible courses of the non-technical electives content of each engineering curriculum is established by the respective departments. Therefore, individual departments may delete courses from this list, require certain courses, or require selections from specific subgroups. Students should consult their departments for any restrictions.

It is recognized that individual students may desire to take courses not on the approved list. The Academic Advisor should discuss their interests and desires with their academic advisor prior to registering for elective courses if such courses are to be used to satisfy degree requirements. Also, the catalog may state prerequisites, for upper-division courses in the list. In such cases, students are encouraged to consult the instructor in the particular course. With respect to student records, deviations from this list are handled by means of a substitution sheet which originates with the advisor.

**ELECTIVE OPTIONS IN HUMANITIES AND SOCIAL STUDIES**

**Area I. Human, Economic, and Political Relationships to Engineering**

**IA. Governance and Political Science**

Business Law 4110
Economics 3340
Geography 3610
History 3750, 4311-21, 4370, 4380
Political Science 2510-20, 3545-46, 3555, 3566, 3710-20, 3750-60, 3801-2, 03-04, 3880, 4535-36, 4540-50, 4545-46, 4665-66, 4940
Sociology 3300, 3420, 4330, 4530

**IB. Economics**

Economics 2110-20, 2118-28-38, 3110, 3120, 3220, 3240, 3250
Geography 2110-20, 3410
Geology 2310
Management 4320

**IC. Sociology and Psychology**

Geography 3000, 3600, 3660
Journals 4410
Psychology 2500, 3120, 3220, 3550, 3650, 4610, 4650-60, 4900
Sociology 1510, 1520, 3030, 3150, 3320, 3410, 3610, 3620, 4330, 4560

**ID. Human Values**

Geography 3000
History 4640-50-60
Philosophy 2310, 2410, 3111-21-31-41, 3112-11, 3440, 3890, 3910
Religious Studies 2610, 3550, 3600-10-20, 3740

**Area II. Society—Its Culture, History and Literature**

**IIA. Fine Arts**

(Note: No more than 8 quarter hours may be taken in the performing arts—voice, instrumentation, band, chorus, etc.)

Art 1815-25, 3735, 3736, 3745, 3746, 3765, 3766
English 2660, 3411-12-20-30
Music 3xxx Ensemble
Music 1210-20, 1340, 2310-20-30-40, 3350, 4210-20, 4241, 4620-70
Theatre 1510, 3522-53-54

**IIIB. American Culture**

American Studies 3010
Art 3735, 3736, 3745, 3746
Black Studies 2010-20, 3550-60, 4830
English 2530, 2540, 2640-50, 3010-20-30, 3080, 3160, 3310, 3430, 4050-60, 4620, 4851-52
History 3420, 3430, 3450, 3660, 3910, 3920, 3930, 3940, 4240
The Voluntary ROTC Program. Engineering students may participate in the ROTC Program. Advanced ROTC courses (3000 and 4000 series) may be counted as technical elective credit toward an engineering degree up to a total of nine (9) quarter hours. No ROTC course can be used as a humanistic-social elective. Individual departments determine the appropriate substitutions.

Approval of Electives and Substitutions. Not later than the beginning of the third quarter prior to anticipated graduation, each student shall discuss with an adviser the status of the program of study. Any necessary additions to or substitutions in the program, or electives requiring special approval, shall be cleared in written form at that time, and it is each student's responsibility to see that all necessary approvals are secured.

CURRICULA, TABULAR VIEW

In the following pages are given the course requirements for the various engineering curricula. With no deficiencies in entrance requirements and with careful scheduling of courses, students should complete the regular curricula in four academic years, or the cooperative curricula in five years.

In the following tabulations, the numbers immediately following the names of the courses refer to the description of the courses under "Departments of Instruction." The numbers in the columns indicate the number of quarter hours of credit applicable to each course. Non-technical electives are normally the same as humanities-social studies electives.

Aerospace Engineering

Freshman
Math 1840-50-60 ............... 4 4 4
Chemistry 1110-20-30 .................. 4 4 4
English 1010-20-33 ............... 3 3 3
Graphics 1410-20 ............... 3 3 3
Basic Engineering 1310-20-30 .......... 4 4 4
Basic Engineering 1410 .......... 2

Sophomore
Aero. Engr. 2040 .................. 1
Math 2840-50-60 .................. 4 4 4
Physics 2310-20-30 ............... 3 3 3
Engr. Sci. & Mech. 3311, 3700 .... 4 4
Met. Engr. 2110 .......... 4 4 4
Economics 2110 .......... 3
Computer Science 3150 ........ 3

Humansocial studies electives .......

Before entering the third quarter of the junior year, the student, with the aid and approval of the adviser, must select a program of technical electives.

Junior
Aero. Engr. 3040 ............... 1
Aero. Engr. 3511 .................. 4
Aero. Engr. 3810-20-30 .... 3 3 3
Aero. Engr. 3630-40 ............... 3
Elec. Engr. 3110-20-30 .......... 3 3 3
Engr. Sci. & Mech. 3320 .... 3
Mech. Engr. 3311, 3321-30-30 .... 3 2 3
Mech. Engr. 3410 .......... 3
Mech. Engr. 3440, 4420 .......... 3
Mech. Engr. 3910 .......... 3

Humansocial studies electives .......

History 1950-60, 2350, 2510-20, 3610-20, 3670, 3680, 4280, 4290, 4640-50-60
Music 1210-20, 1340, 2310-20-30-40, 3350
Philosophy 1510-20, 3311-12, 3315, 3440, 3690, 3720
Political Science 3801-02-03-04
Religious Studies 3510-20, 3560, 3740
Speech 4011-21
Theatre 3262-63
University Studies 3010

II. History
Geography 4240
Religious Studies 2611

IIID. Literature
 Classics 2710-20, 3210-20-30
 Comparative Literature 2010
 English 2510-20-30-40, 2560-70-80, 3010-20-30, 3070-80, 3160, 3940, 4010-20, 4050-60, 4310-20-30-40, 4620, 4651-52, 4720-30
 German 3210-20-30
 Psychology 4660
 Religious Studies 3710
 Russian 3210-20-21-30

IIIE. Anthropology
 American Studies 3010
 Anthropology 2510-20-30, 3410, 3450, 3710, 3880, 4420
 Asian Studies 2510-20
 Geography 3660
 History 1950-60, 4250-60-70, 4640-50-60

Area III. Technology and Society

IA. Human Habitat
 Agricultural Economics 4330
 Botany 3090
 Geography 3490, 3520-30, 3600, 3910
 Journalism 4410
 Political Science 4940
 Psychology 4900

Public Health 3320
Sociology 1510-20, 3130, 3410-20, 3610, 4030, 4110, 4330

III B. Technology Assessment
Biology 3130
Botany 3090
Biology 3240, 4260
Geography 2110-20-30, 3430, 3490, 4240
Geology 2310, 3510
Philosophy 3720, 3740-50, 3770, 4710
Psychology 4900
Religious Studies 3740
Rural Sociology 4450
Sociology 3610, 4110, 4330
University Studies 3010, 4100

III C. Communication
Broadcasting 3650 or
Journalism 2210
Journalism 3110, 3710-20, 4410
Philosophy 2510-20
Sociology 3010
Speech 2311, 2331, 3011, 3021

III D. Resources
Economics 4260
Forestry 3730
Geography 2110-20-30, 3490
Geology 2310
University Studies 3010, 4110

American History Requirement.
Engineering students, regardless of national origin, graduating in August 1978 or thereafter, must fulfill the American history requirement described on page 27 of this catalog. Those students who have not had the required year of American history in high school may choose the required nine quarter hours from History 2510, 2520, 2511, and 2521, or other courses deemed suitable by the Department of History. These hours can be counted as part of the required block of humanities and social studies 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 tabulations a choice of such electives is indicated, and regulations in regard to their selection are stated.
### Agricultural Engineering

(See College of Agriculture Section.)

### Biomedical Engineering

Available in Engineering Science Degree Program

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>See Basic Curriculum, Engineering Science</td>
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### Civil Engineering

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### Chemical Engineering

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### Electrical Engineering

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<th>Credit</th>
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<tbody>
<tr>
<td>See Basic Curriculum, Electrical Engineering</td>
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### Computer Engineering

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<tr>
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<tr>
<td>Elec. Engr. 4610...</td>
<td>3</td>
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<tr>
<td>Elec. Engr. 4601...</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4820...</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4800...</td>
<td>3</td>
</tr>
<tr>
<td>Math 4710 or 4510...</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4100...</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2110...</td>
<td>3</td>
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<tr>
<td>Elec. Engr. 4830...</td>
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<tr>
<td>Humanities/social studies electives</td>
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<td><strong>TOTAL:</strong> 203 hours</td>
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### Electronics and Instrumentation

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<tbody>
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<td>Elec. Engr. 4680-90, 4700...</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4630...</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4601...</td>
<td>3</td>
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<tr>
<td>Elec. Engr. 4600...</td>
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<td>Elec. Engr. 4370...</td>
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<tr>
<td>Elec. Engr. 4600...</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2110...</td>
<td>3</td>
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<tr>
<td>Humanities/social studies electives</td>
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<td><strong>TOTAL:</strong> 203 hours</td>
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### Bioelectric Option

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<td>Biology 1210-20-30</td>
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<tr>
<td>Chemistry 2230...</td>
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<td>Elec. Engr. 4660...</td>
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<tr>
<td>Zoology 1110-20-30</td>
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<td>Elec. Engr. 4600...</td>
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<td>Elec. Engr. 4430...</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4370...</td>
<td>3</td>
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<tr>
<td>Elec. Engr. 4820...</td>
<td>3</td>
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<td><strong>TOTAL:</strong> 206 hours</td>
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### Engineering Physics

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<tr>
<td>English 1010-20-33,</td>
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<tr>
<td>Engineering 3080-3089</td>
<td>4</td>
</tr>
<tr>
<td>Graphics 1410-20</td>
<td>3</td>
</tr>
<tr>
<td>Physics 1310-20-30</td>
<td>4</td>
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<tr>
<td><strong>TOTAL:</strong> 203 hours</td>
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### Electronics and Instrumentation

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<td>Non-technical elective,</td>
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<td>Physics 2310-20-30</td>
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### Junior

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<td>Physics 3210-20-30</td>
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<tr>
<td>Physics 4210-20</td>
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<tr>
<td>Physics lab electives</td>
<td>3</td>
</tr>
<tr>
<td>Electives...</td>
<td>3</td>
</tr>
<tr>
<td>Technical electives</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL:</strong> 190 hours</td>
<td></td>
</tr>
</tbody>
</table>

### Senior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics 4240 (or 4250)</td>
<td>3</td>
</tr>
<tr>
<td>Physics 1110-20-30</td>
<td>3</td>
</tr>
<tr>
<td>Physics electives</td>
<td>3</td>
</tr>
<tr>
<td>Technical electives</td>
<td>3</td>
</tr>
<tr>
<td>Engineering electives</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL:</strong> 190 hours</td>
<td></td>
</tr>
</tbody>
</table>

1. Course will usually be required; however, a student's major adviser may substitute another 4000-level electrical engineering course without filling a substitution form.

2. A student must take any three of the first six courses (top two lines)—the remaining three of these first six may be any 4000-level or higher course in electrical engineering.

### Engineering Science

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman Mathematics 1840-50-60.</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td>4</td>
</tr>
<tr>
<td>English 1010-20-33</td>
<td>3</td>
</tr>
<tr>
<td>Physics 2310-20-30</td>
<td>3</td>
</tr>
<tr>
<td>Basic Engineering 1310-20-30</td>
<td>4</td>
</tr>
<tr>
<td>Basic Engineering 1410</td>
<td>2</td>
</tr>
<tr>
<td>Sophomore Math 2840-50-60</td>
<td>4</td>
</tr>
<tr>
<td>Physics 2310-20-30</td>
<td>3</td>
</tr>
<tr>
<td>Met. Engr. 2110</td>
<td>4</td>
</tr>
<tr>
<td>Eng. Sci. &amp; Mech. 3700, 3311, 3110</td>
<td>4</td>
</tr>
<tr>
<td>Elect. Engr. 3110</td>
<td>3</td>
</tr>
<tr>
<td>Humanities/social studies electives</td>
<td>4</td>
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</table>

### Industrial Engineering

<table>
<thead>
<tr>
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<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Freshman Math 1840-50-60</td>
<td>4</td>
</tr>
<tr>
<td>English 1010-20-33</td>
<td>4</td>
</tr>
<tr>
<td>Physics 2310-20-30</td>
<td>3</td>
</tr>
<tr>
<td>Graphics 1410-20</td>
<td>3</td>
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<tr>
<td>Basic Engineering 1310-20-30</td>
<td>4</td>
</tr>
<tr>
<td>Basic Engineering 1410</td>
<td>2</td>
</tr>
<tr>
<td>Sophomore Math 2840-50-60</td>
<td>4</td>
</tr>
<tr>
<td>Electrical eng.</td>
<td>4</td>
</tr>
<tr>
<td>Physics 2310-20-30</td>
<td>3</td>
</tr>
<tr>
<td>Engr. Sci. &amp; Mech. 3311, 3700</td>
<td>4</td>
</tr>
<tr>
<td>Ind. Engr. 2310</td>
<td>3</td>
</tr>
<tr>
<td>Statistics 3450, 3460</td>
<td>3</td>
</tr>
<tr>
<td>Humanities/social studies electives</td>
<td>3</td>
</tr>
<tr>
<td>Ind. Engr. 3610</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL:</strong> 196 hours</td>
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</tr>
</tbody>
</table>

### Mechanical Engineering

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman Math 1840-50-60</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td>4</td>
</tr>
<tr>
<td>English 1010-20-33</td>
<td>3</td>
</tr>
<tr>
<td>Graphics 1410-20</td>
<td>3</td>
</tr>
<tr>
<td>Basic Engineering 1310-20-30</td>
<td>4</td>
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<tr>
<td>Basic Engineering 1410</td>
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<tr>
<td>Sophomore Math 2840-50-60</td>
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<tr>
<td>Physics 2310-20-30</td>
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<tr>
<td>Engr. Sci. &amp; Mech. 3311, 3700</td>
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<td>Met. Engr. 2110</td>
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<tr>
<td>Economics 2110</td>
<td>3</td>
</tr>
<tr>
<td>Computing Science 3150</td>
<td>3</td>
</tr>
<tr>
<td>Humanities/social studies electives</td>
<td>3</td>
</tr>
</tbody>
</table>

**Before entering the third quarter of the junior year the student, with the aid and approval of an adviser, must select a program of mechanical engineering and technical electives. The following areas of specialization are available in the senior year: Energy, Environmental, Manufacturing, Machine Design, Propulsion and Aerospace. See page 154.**

### Metallurgical Engineering

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Freshman Math 1840-50-60</td>
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<tr>
<td>Chemistry 1110-20-30</td>
<td>4</td>
</tr>
<tr>
<td>English 1010-20-33</td>
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</tr>
<tr>
<td>Graphics 1410-20</td>
<td>3</td>
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<tr>
<td>Basic Engineering 1310-20-30</td>
<td>4</td>
</tr>
<tr>
<td>Basic Engineering 1410</td>
<td>2</td>
</tr>
</tbody>
</table>

1. To be taken from College of Liberal Arts triads of Language, Literature and Arts, or History and Society, with at least 15 hours from courses approved for Language, Literature and Arts.
Nuclear Engineering

<table>
<thead>
<tr>
<th>Class</th>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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<td>Math 1840-50-60</td>
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<td>4</td>
</tr>
<tr>
<td></td>
<td>English 1010-20-33</td>
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<td></td>
<td>Chemistry 1110-20-30</td>
<td>4</td>
<td>3</td>
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<tr>
<td></td>
<td>Basic Engr. 1310-30-20</td>
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<tr>
<td></td>
<td>Graphics 1410-20</td>
<td>4</td>
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<tr>
<td></td>
<td>Basic Engr. 1410</td>
<td>2</td>
<td>2</td>
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<tr>
<td>Sophomore</td>
<td>Math 2840-50-60</td>
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<td></td>
<td>Nuclear Engr. 2310-20-30</td>
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<tr>
<td></td>
<td>Physics 2310-20</td>
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<td></td>
<td>Math 3150</td>
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<td>3</td>
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<tr>
<td></td>
<td>Engr. Sci. &amp; Mech. 3700, 3311</td>
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<td>4</td>
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<tr>
<td></td>
<td>Nuclear Engr. 3110</td>
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<tr>
<td></td>
<td>Humanities/social studies electives</td>
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<tr>
<td>Junior</td>
<td>Math 4610, 4710, 4550</td>
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<td>Physics 3710-20-30</td>
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<td>Elec. Engr. 3110-20</td>
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<td>Nuclear Engr. 3210-20</td>
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<td>Nuclear Engr. 3010</td>
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<td>Indus. Engr. 4520</td>
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<td>Met. Engr. 3160</td>
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<td>Humanities/social studies electives</td>
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<tr>
<td>Senior</td>
<td>Nuclear Engr. 4110-20-30</td>
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<td>Nuclear Engr. 4210-20-30</td>
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<td>Nuclear Engr. 4710-20-30</td>
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<td>Nuclear Engr. 3190</td>
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<td>Nuclear Engr. 4810-20</td>
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<tr>
<td></td>
<td>Tech. electives</td>
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<td>3</td>
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</tbody>
</table>

TOTAL: 198 hours

*Not required in the cooperative program.
* A minimum of one-half (12 quarter hours) of the humanities/social studies electives must be taken from a single group under one of the three areas.
### Cooperative Curriculum in Aerospace Engineering

**Students Working Spring and Fall Quarters—Group A**

<table>
<thead>
<tr>
<th>FALL</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST YEAR</td>
<td>Math 1840</td>
<td>Math 1850</td>
<td>Math 1860</td>
</tr>
<tr>
<td></td>
<td>Chem. 1110</td>
<td>Chem. 1120</td>
<td>Chemistry 1130</td>
</tr>
<tr>
<td></td>
<td>English 1010</td>
<td>English 1020</td>
<td>English 1033</td>
</tr>
<tr>
<td></td>
<td>Graphics 1410</td>
<td>Graphics 1420</td>
<td>Basic Engr. 1330</td>
</tr>
<tr>
<td></td>
<td>Basic Engr. 1310</td>
<td>Basic Engr. 1320</td>
<td>Basic Engr. 1410</td>
</tr>
</tbody>
</table>

**SECOND YEAR**

| | WORK | | |
| | Aero. Engr. 2040 | | Math 2850 |
| | Physics 2310 | | Physics 2320 |
| | Econ. 2110 | | ES & M 3311 |
| | *Humanities/social studies elect.* | | Mech. Engr. 2110 |

**THIRD YEAR**

| | WORK | | |
| | Math 2860 | | Aero. Engr. 3040 |
| | Physics 2330 | | Aero. Engr. 3610 |
| | ES & M 3700 | | Elec. Engr. 3110 |
| | *Humanities/social studies elect.* | | ES & M 3320 |

**FOURTH YEAR**

| | WORK | | |
| | Aero Engr. 3620 | | Aero Engr. 3511 |
| | Aero Engr. 3630 | | Aero Engr. 3640 |
| | Elec. Engr. 3120 | | Elec. Engr. 3130 |
| | Mech. Engr. 3440 | | *Humanities/social studies elect.* |

**FIFTH YEAR**

| | | | |
| | Aero Engr. 4210 | Aero Engr. 4510 | Aero Engr. 4230 |
| | Aero Engr. 4220 | Aero Engr. 4250 | Aero Engr. 4260 |
| | Aero Engr. 4471 | Aero Engr. 4491 | Tech. elect. |
| | Aero Engr. 4310 | Aero Engr. 4320 | *Humanities/social studies elect.* |
| | Mech. Engr. 4510 | *Tech. elect.* | *Humanities/social studies elect.* |
| | *Tech. elect.* | | |

**TOTAL:** 203 hours

---

**Students Working Summer and Winter Quarters—Group B**

<table>
<thead>
<tr>
<th>FALL</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST YEAR</td>
<td>Math 1840</td>
<td>Math 1850</td>
<td>Math 1860</td>
</tr>
<tr>
<td></td>
<td>Chem. 1110</td>
<td>Chem. 1120</td>
<td>Chemistry 1130</td>
</tr>
<tr>
<td></td>
<td>English 1010</td>
<td>English 1020</td>
<td>English 1033</td>
</tr>
<tr>
<td></td>
<td>Graphics 1410</td>
<td>Graphics 1420</td>
<td>Basic Engr. 1330</td>
</tr>
<tr>
<td></td>
<td>Basic Engr. 1310</td>
<td>Basic Engr. 1320</td>
<td>Basic Engr. 1410</td>
</tr>
</tbody>
</table>

**SECOND YEAR**

| | WORK | | |
| | Aero Engr. 2040 | | Math 2850 |
| | Math 2860 | | Physics 2320 |
| | Physics 2310 | | ES & M 3311 |
| | Econ. 2110 | | Mech. Engr. 2110 |
| | *Humanities/social studies elect.* | | *Humanities/social studies elect.* |

**THIRD YEAR**

| | WORK | | |
| | Math 2860 | | Aero Engr. 3040 |
| | Physics 2330 | | Aero Engr. 3610 |
| | ES & M 3700 | | Elec. Engr. 3110 |
| | *Humanities/social studies elect.* | | ES & M 3320 |

**FOURTH YEAR**

| | WORK | | |
| | Aero Engr. 3620 | | Aero Engr. 3511 |
| | Aero Engr. 3630 | | Aero Engr. 3640 |
| | Elec. Engr. 3120 | | Elec. Engr. 3130 |
| | Mech. Engr. 3440 | | *Humanities/social studies elect.* |

**FIFTH YEAR**

| | | | |
| | Aero Engr. 4210 | Aero Engr. 4510 | Aero Engr. 4230 |
| | Aero Engr. 4220 | Aero Engr. 4250 | Aero Engr. 4260 |
| | Aero Engr. 4471 | Aero Engr. 4491 | Tech. elect. |
| | Aero Engr. 4310 | Aero Engr. 4320 | *Humanities/social studies elect.* |
| | Mech. Engr. 4510 | *Tech. elect.* | *Humanities/social studies elect.* |
| | *Tech. elect.* | | |

**TOTAL:** 203 hours

---

*Humanities/social studies electives; minimum of 20 hours required.

*Technical electives; upper division courses in engineering, mathematics or physical science as approved by the department.
## Cooperative Curriculum in Agricultural Engineering (See College of Agriculture Section)

### Cooperative Curriculum in Chemical Engineering

**Students Working Spring and Fall Quarters—Group A**

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First</strong></td>
<td>Mat 1840 . . . . 4</td>
<td>Chem 1110 . . . . 4</td>
<td>Math 1850 . . . . 4</td>
<td>Chem 1120 . . . . 4</td>
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<td>YEAR</td>
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<td>English 1020 . . . . 3</td>
<td>English 1020 . . . . 3</td>
<td>English 1033 . . . . 3</td>
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<td>Basic Engr. 1310 . . . . 4</td>
<td>Basic Engr. 1320 . . . . 4</td>
<td>Basic Engr. 1310 . . . . 4</td>
<td>Basic Engr. 1320 . . . . 4</td>
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<tr>
<td><strong>Second</strong></td>
<td>Chem. Engr. 2140 . . . . 4</td>
<td>Math 2840 . . . . 4</td>
<td>Chem. Engr. 2030 . . . . 4</td>
<td>ES &amp; M 2720 . . . . 3</td>
</tr>
<tr>
<td>YEAR</td>
<td>WORK</td>
<td>WORK</td>
<td>WORK</td>
<td>WORK</td>
</tr>
<tr>
<td></td>
<td>Humanities/social studies elect. . . . . 4</td>
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<tr>
<td><strong>Third</strong></td>
<td>Chem. Engr. 2020 . . . . 4</td>
<td>Math 2860 . . . . 4</td>
<td>Chem. Engr. 3040 . . . . 4</td>
<td>Chemistry 3211-19 . . . . 4</td>
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<tr>
<td>YEAR</td>
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<td>WORK</td>
<td>WORK</td>
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<tr>
<td></td>
<td>Math 2860 . . . . 4</td>
<td>Physics 2320 . . . . 3</td>
<td>Chem. Engr. 3040 . . . . 4</td>
<td>Humanities/social studies elect. . . . . 4</td>
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<td><strong>Fourth</strong></td>
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<td>Elec. Engr. 3110 . . . . 4</td>
<td>Elec. Engr. 3120 or 3130 . . . . 4</td>
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<td>YEAR</td>
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<td>Major electives . . . . 3</td>
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**Students Working Summer and Winter Quarters—Group B**

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First</strong></td>
<td>Mat 1840 . . . . 4</td>
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<td>Math 1860 . . . . 4</td>
<td>Chem. Engr. 3040 . . . . 4</td>
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<td>YEAR</td>
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<td>English 1010 . . . . 3</td>
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<td>Math 2860 . . . . 4</td>
<td>Chem. Engr. 3420 . . . . 4</td>
<td>Chemistry 3211-19 . . . . 4</td>
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TOTAL: 200 hours

*A minimum of one-half (12 quarter hours) of the humanities/social studies electives must be taken from a single group under one of the three areas of the humanities and social studies electives.*
Cooperative Curriculum in Civil Engineering

**Students Working Spring and Fall Quarters—Group A**

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TOTAL: 201 hours

**Students Working Summer and Winter Quarters—Group B**

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TOTAL: 201 hours

1Humanities/social studies courses approved by the department.
1Math/science courses approved by the department.
*Technical electives must be approved by the student’s adviser and the primary and one secondary area must come from the department list of approved courses for 15 credits and 6 credits respectively.
*Mechanical Engineering 3520 or 3311 may be substituted.
### Cooperative Curriculum in Electrical Engineering

#### Students Working Spring and Fall Quarters—Group A

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### Students Working Summer and Winter Quarters—Group B

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TOTAL: 203-206 hours
### Cooperative Curriculum in Engineering Physics

**Students Working Spring and Fall Quarters—Group A**

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**Students Working Summer and Winter Quarters—Group B**

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1. To be taken from the College of Liberal Arts triads of Language, Literature and Arts, or History and Society, with at least 16 hours from courses approved for Language, Literature and Arts.
2. The honors sequence (Physics 1318-28-38) is recommended for qualified majors.
3. To be taken in College of Engineering.
5. From engineering, mathematics, computer science, physics, chemistry, or astronomy.
6. Students not pursuing graduate studies may substitute Physics 3710-20-30.
### Cooperative Curriculum in Engineering Science

**Students Working Spring and Fall Quarters—Group A**

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**TOTAL: 196 hours**

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### Students Working Summer and Winter Quarters—Group B

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**TOTAL: 196 hours**

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1Humanities/social studies courses approved by the department.

*Appropriate courses approved by the department.

*Appropriate courses in the College of Engineering approved by the department.

*Upper-division courses in mathematics, statistics, natural science, or engineering approved by the department.
## Cooperative Curriculum in Industrial Engineering

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**TOTAL: 206 hours**

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**TOTAL: 206 hours**
# Cooperative Curriculum in Mechanical Engineering

**Students Working Spring and Fall Quarters—Group A**

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**TOTAL: 203 hours**

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**Students Working Summer and Winter Quarters—Group B**

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**TOTAL: 203 hours**

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*Humanities/social studies electives: minimum of 20 hours required.

*Mechanical engineering electives: senior courses in mechanical or aerospace engineering not otherwise required.

*Technical electives: upper-division courses in engineering, mathematics or physics as approved by the department.
## Cooperative Curriculum in Metallurgical Engineering

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**TOTAL: 200 hours**

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**TOTAL: 200 hours**

1A minimum of one-half (12 quarter hours) of the non-technical electives must be taken from a single group under one of the three areas of the humanities and social studies electives.
# Cooperative Curriculum in Nuclear Engineering

**Students Working Spring and Fall Quarters—Group A**

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**TOTAL: 198 hours**

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**Students Working Summer and Winter Quarters—Group B**

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**TOTAL: 198 hours**
Departments of Instruction

Agricultural Engineering
(See College of Agriculture)

Basic Engineering and Graphics
(Non-Departmental Unit)

Basic Engineering (179)
Coordinator: W.T. Snyder

1310 Basic Mechanics I (4) Forces, vector quantities, and moments; resultants of force systems; simple static equilibrium. Required of all engineering students except engineering physics majors. Coreq: Math 1840. 3 hrs and one 3-hr lab.

1320 Basic Mechanics II (4) Displacement vectors; particle kinematics and projectile motion; kinetics of particles using Newton's laws, frictional forces, and impulse-momentum. Required of all engineering students except engineering physics majors. Prereq: 1310; coreq: Math 1850. 3 hrs and one 3-hr lab.

1410 Engineering Computations (2) Presentation of data; elementary problem solving; use of slide rule and digital computer; treatment of error; empirical methods. Prereq: Math 1840. 2 hrs plus open computer lab.

Graphics (443)
Coordinator: J.N. Snider

Basic Faculty:
Professor C.A. Newton (Emeritus), M.S.
Syracuse; W.W. Thomas, Jr. (Emeritus), B.S.
Tennessee; Associate Professors E.K. Boyce, M.S.
Tennessee; W.A. Lyday, Jr., M.S.
Tennessee.

1310-20-30 Fundamentals of Engineering Graphics (2, 2, 2) Graphic representation of three-dimensional objects; representation by orthographic and pictorial projection; sketching and dimensioning; tolerances. Problem solving utilizing spatial relationships and graphical vector analysis, and graphical presentation of engineering data. Must be taken in sequence. Two 3-hr periods or three 2-hr periods.

1410-20 Fundamentals of Engineering Graphics (3, 3) Graphical representation of three-dimensional shape and size; space relationships. Graphical presentation of engineering data. Required of all engineering students. Must be taken in sequence. One lecture and three 2-hr periods or two 3-hr periods.

Engineering Studies
(Non-Departmental Unit)

Engineering Studies (338)
Coordinator: E.E. Stansbury

2100 Introduction to Engineering Methodology (4) Designed to introduce non-engineering students to representative methods utilized in engineering design, development, operation, and evaluation of processes and products for society; use of physical laws and examples of techniques such as modeling, systems analysis, economic balances; problems of resource use and technology control; thematic approaches may be used.

4100 History of Engineering (4) History of technology and engineering with emphasis on identification of and developments in major areas such as transportation, communication, energy, manufacturing, design, and materials. Relationship to social and political structures of historical periods. Open to all students.

4200 Technology Forecasting and Assessment (4) Procedures and problems in forecasting of consequences of existing and new technologies; assessment of and decisions on use of these technologies. Societal and technological implications of consequence-based assessment and control of technology. Open to all students.

4300 The Interaction Between Science and Engineering (4) Historical-to-current analysis of interactions between science and engineering—patterns of mutual stimulation and of distinction. Open to all students.

Chemical, Metallurgical and Polymer Engineering

Professors: H.F. Johnson (Head), D. Eng. Yale, P.E.; D.C. Bogie, Ph.D. Delaware; C.R. Brooks, Jr., Ph.D. Tennessee; E.S. Clark, Ph.D. California (Berkeley); O.L. Culberson, Ph.D. Texas; L.W. Crawford, Ph.D. Cincinnati; J.F. Fellers, Ph.D. Akron; E. Franz Jr., D. Eng. Johns Hopkins; H.W. Hsu, Ph.D. Wisconsin; S.H. Iury (Emeritus), Ph.D. Cincinnati, P.E.; C.D. Lundin, Ph.D. Minnesota; C.F. Moore, Ph.D. Louisiana State; B.F. Olver, Ph.D. Pennsylvania State; J.J. Perona, Ph.D. Northwestern; J.W. Prados (Professor Emeritus of Academic Affairs), Ph.D. Tennessee; J.E. Serrulli, Ph.D. Tennessee; E.E. Stansbury, Ph.D. Cincinnati; C.O. Thomas, Ph.D. Tennessee; J.L. White, Ph.D. Delaware; M.A. Wright, Ph.D. Wales.

Associate Professor: W.T. Becker, Ph.D. Illinois.

Assistant Professors: D.D. Bruns, Ph.D. Houston; P.J. Mescher, Ph.D. Pennsylvania.

*Alumni Distinguished Service Professor
*Distinguished Service Professor
Space Institute, Tullahoma

BACHELOR OF SCIENCE PROGRAM
Separate complete curricula are offered in chemical engineering and in metallurgical engineering. However, the first two years of these curricula are identical and a decision as to choice can be made in the third year. Both curricula are arranged to provide a central core of courses with flexibility in the upper-division years to permit emphasis on preparation for graduate study or technical employment.

GRADUATE STUDY PROGRAMS
Graduate programs leading to the degrees of Master of Science and Doctor of Philosophy with majors in chemical engineering, metallurgical engineering or polymer engineering are offered. A program leading to the M.S. and Ph.D. degrees with specialization in polymer science and engineering in chemical engineering is conducted jointly with the Department of Chemistry which offers a degree in polymer science and specialization. These programs have been strengthened by fellowships or grants provided by industrial companies including Dow, DuPont, General Electric, Shell, Texaco, Procter and Gamble, Celanese, Monsanto, American Enka, Union Carbide, Stauffer, Owens Corning, Cities Service, and Eastman Kodak, and by graduate fellowships and traineeships provided by National Science Foundation. Other aid to students has been available through research assistantships on contracts with industry and governmental agencies. The University's Graduate School operates a Resident Graduate Program at Oak Ridge, Kingsport, and Knoxville.

See the Graduate Catalog for detailed information.

Chemical and Metallurgical Engineering (227)


2111 Sophomore Inspection Trip (0) Inspection trip to industrial plant. Usually scheduled in fall on ETEA day. Required of chemical engineering and metallurgical engineering majors. S/NC.


2203 Process Principles and Materials III (4) Materials—structure, properties relationships for metals, organic and inorganic compounds, with emphasis on mechanisms of control of properties by chemical composition, thermal and mechanical treatment; crystallography, imperfections, mechanical properties, heat treatment, molecular weight and particle size distributions. Prereq: 2110, Chemistry 1130. 3 hrs and 1 lab period.

2220 Analog Computer Practice (1) Introduction to fundamentals of analog programming. Analog computer facilities and analog simulation programs will be emphasized. Prereq: Math 2840; Physics 2310 or Elec. Engr. 3110 or consent of instructor. One lab. S/NC.

2230 Mini Computer Practice (1) Use of mini computers. Prereq: Basic Engineering 1410, or consent of instructor. One lab. S/NC.

2240 Mini Computer Data Acquisition (1) Mini computers for data acquisition. Prereq: 2230 or consent of instructor. One lab. S/NC.

3100 Introduction to the Materials of Technology (4) Examination of sources, properties, and applications of metallic, ceramic, polymeric and composite materials based upon an historical perspective and current practices in technology, architecture, and art. Lectures and demonstrations. Open to students in all colleges. Prereq: Introductory science courses.

4310-30 Seminar (1, 1) Presentation and discussion of economic, political, humanitarian, and other topics of interest to chemical and metallurgical engineers. S/NC.

Chemical Engineering (226)

3010 Industrial Inspection Trips (1) Technology of chemical process industries emphasizing Tennessee industry, plant tours. S/NC.

3040 Chemical Engineering Thermodynamics (4) Applications of the second law of thermodynamics to physical and chemical processes and thermodynamic cycles; applications of the Gibbs function to one, two and three phase chemical systems; use of tabular and graphical data in equilibrium calculations. Prereq: Chemistry 1130; coreq: Math 2840. 3 hrs and 1 lab period.

3230 Special Problems (3) Investigation of chemical engineering problems.

3410 Flow of Fluids (4) Differential and overall momentum balances, mechanical energy balances; flow in tubes, piping systems, and packed beds; metering devices, pumps. Prereq: Chem. Engr. 2050, 2060, 2620. 3 hr lecture, 1 lab.

3420 Heat Transfer (4) Differential and overall energy balances; steady and unsteady state, heat conduction in simple geometries; heat transfer in tubes and heat exchangers; condensation and boiling radiation. Prereq: 3410. 3 hrs and 1 lab.


3450 Diffusional Operations (3) Diffusion simultaneous heat and mass transfer, applications including humidification, gas absorption, extraction. Prereq: 3420, Chem. Engr. 3040.

3610 Introduction to Process Dynamics and Control (3) Introduction to concepts of process dynamics and control. Steady-state analysis of chemical process control systems. Unsteady state analysis of process dynamics. LaPlace transform techniques, block diagram algebra and transfer functions. Mathematical models for several processes, development and analysis in detail. Prereq: Math. 2840.

3620 Chemical Process Control (3) Basic control theory applied to chemical processes: feedback control systems, cascade control, feed-forward control, stability analysis, frequency response. Survey of modern control of typical industrial unit operations. Prereq: 3610.

4010-20 Thesis (3, 3) Investigation and report of elementary chemical engineering problem.

4110 Chemical Engineering Data Analysis (3) Analytical and experimental identification of system extremes; statistical properties of samples and source systems; empirical modeling and statistical process control. Prereq: 3420, Math 3150.

4120 Probabilistic Chemical Engineering Systems (3) Experiment design, simulation of stochastic systems, predictive techniques, and analysis of networks in the process industries. Prereq: 4110.

4130 Introduction to Optimization (3) Principles and applications of optimization techniques to chemical process design, unconstrained and constrained optimization, sensitivity analysis, constrained optimization, inequality constrained optimization, and dynamic programming. Prereq: Math 2640.

4220 Chemical Engineering Laboratory (3) Laboratory investigation of chemical engineering principles and techniques relevant to chemical engineering operations. Prereq: 3440-50, 3620, 4530.

4230 Project Laboratory (3) Laboratory investigation of chemical engineering problem, stressing techniques of group effort. May be repeated.


4420 Process Design and Economic Analysis (3) Development of basic information on a process into an integrated plant design considering mass and energy balances. Product specifications, equipment and capital investment, operating costs and economic merit. Prereq: 4410, 4530.

4430 Special Problems in Design and Economics (3) Extension of 4420 for student participation in A.E. E. annual contest problem; other advanced design projects. Prereq: 4420.

4450 Hydrocarbon Processing (3) Study of specialized characterization of physical properties of fossil fuels and heat materials, and design of processes for conversion of fossil fuel raw materials into products needed in industrial energy, industrial raw material and consumer markets. Prereq: 3440.

4470 Sulfur Removal from Coal and Associated Problems (3) Chemical and physical properties of domestic coals, sulfur distributions; beneficiation by both physical and chemical methods; fluidized bed combustion with both natural and synthetic SOx sorbents; stack gas SO2 scrubbing. Prereq: Consent of instructor.

4480 Coals Processing to Liquid Fuels (3) Characterization of various coals with respect to current liquification methods; modeling of conversion processes and estimation of maximum yields; water-steam coal gasification; pyrolysis; catalytic hydrogenation; reactor design considerations; review and critique of selected articles from both the current literature and patents. Prereq: Consent of instructor.

4530 Chemical Engineering Reaction Kinetics (3) Chemical reaction rates in closed and flow systems; interpretation of laboratory and pilot plant data; reaction design. Prereq: 3420, Chem. Engr. 3040, Chemistry 3430.

4540 Fluid-Solid Operations (3) Heat and mass transport in fixed and fluidized beds; applications include adsorption, ion exchange, crystallization. Prereq: 3440-50.

4620 Process Modeling, Simulation and Control of Chemical Processes (3) Development of process models, experimental process identification, process control design, conventional and nonconventional feedback control, advanced control concepts. Prereq: 3620 or equivalent basic background in basic control theory and differential equations.

4730 Mass and Energy Flow in Biological Systems (3) Basic physicochemical and organizational principles applicable to biological systems. Derivation of general equations of biomass and energy transfer. Thermodynamics of transport and equilibrium in biological systems. Discussion of Volterra's equation and biological clocks, etc. Prereq: Consent of instructor.

4740 Introduction to Transport Phenomena in Biological Systems (3) Application of principles of transport phenomena to biological systems. Transfer of chemical energy and various cellular active transports; structure and rheology of physiological fluids, membrane and interfacial phenomena; analysis and design of artificial organs. Prereq: 3440 and 3450 or consent of instructor.

4750 Microbiological Process Engineering (3) Application of chemical engineering principles and design concepts to microbiological processes; continuous culture of microorganisms, food processing and chemical processes. Prereq: 3440, 3450 or consent of instructor.

4760 Principles of Biochemical Separation (3) Fundamental aspects and similarities of modern biochemical separation methods; classroom demonstrations, design of production and analytical systems. Prereq: Consent of instructor.

4781-82-83 Topics in Chemical Bioengineering (3, 3, 3) Problems of interest in chemical bioengineering. Prereq: Consent of instructor.

4810-20-30 Special Problems in Chemical Engineering (3, 3, 3) Chemical engineering problems related to recent developments in industrial practice. Prereq: Consent of instructor.

GRADUATE

5000 Thesis (3)

5010 Graduate Seminar (1)

5050 Engineering Analysis (3)

5120 Heat Convection (3)

5130 Methods of Optimization (3)

5210 Process Dynamics (3)

5250 Chemical Process Industry Economics (3)

5310 Thermodynamics of Heterogeneous Equilibria (3)

5320 Statistical Thermodynamics (3)

5410-20-30 Research and Design in Chemical Engineering (3, 3, 3)

5510 Chemical Reactor Design (3)

5610 Stagewise Mass Transfer Operations (3)

5620 Differential Mass Transfer Operations (3)

5810 Mechanisms of Viscous Flow (3)

6000 Doctoral Research and Dissertation

6130 Process Optimization (3)

6210 Advanced Diffusional Operations (3)

6250 Venture Analysis in the Process Industries (3)

6310 Thermodynamics of Irreversible Processes (3)

6320 Statistical Thermodynamics of Non-equilibrium Systems (3)

6410 Stability Phenomena in Chemical Engineering: Discrete Systems (3)

6420 Stability Phenomena in Chemical Engineering: Continuous Systems (3)

6510 Applied Chemical Reaction Kinetics (3)

6520 Catalytic Reactor Design (3)

6610 Special Topics in Chemical Engineering (3)

7170 Process Dynamics (3)

Metallurgical Engineering (679)

2110 Engineering Materials I (3) Introductory course correlating the atomic, crystal, and microstructure of solids and mechanical, physical, and chemical properties of engineering significance. 3 hrs or 2 hrs and 1 lab.

2210 Electron Microscopy (1) Designed to present to science and engineering students a brief introduction to the operation of the electron microscope and its applications to scientific problems. Prereq: Physics 2310-20. 5-hr lab. S/NC.

3010 Industrial Inspection Trips (1) Technology of metallurgical industries, emphasizing Tennessee industry, plant trips. S/NC.

3040 Metallurgical Thermodynamics (4) Application of laws of thermodynamics to problems of metallurgical interest. Second law and entropy; auxiliary functions; relationship between free energies and phase diagrams; reaction equilibria in gases and between gases and condensed phases. Use of heat capacity and free energy data in calculations. Concepts of activity and activity coefficient and their variation with T, P, and composition. Prereq: Chem. Engr. 2020; Chemistry 1130; coreq: Math 2840. 3 hrs and 1 lab period.

3110 Engineering Materials I (4) Introductory course correlating the atomic, crystal, and microstructure of solids with mechanical, physical, and chemical properties of engineering significance. 3 hrs and 1 lab.

3120 Engineering Materials II (3) Extension of 2110 with emphasis on control of mechanical properties of materials by specification of composition, thermal, and mechanical treatment; correlation of resultant properties with service performance. Suggested for mechanical, civil, and industrial engineering students.

3130 Engineering Materials III (2) Extension of 2110 with emphasis on control of electrical and magnetic properties of materials by specification of composition, thermal, and mechanical treatment; correlation of resultant properties with service performance. Suggested for electrical engineering students.

3140 Engineering Materials IV (3) Extension of 2110 with emphasis on materials processing, specification, and evaluation of products for mechanical and industrial engineering students.
4710 Production Metallurgy (3) Thermodynamic and kinetic principles of welding, smelting, refining. Prereq: Chemet. Engr. 3400.
4740 Mechanical Metallurgy II (3) Ductile and brittle fracture, creep and stress rupture, fatigue, and residual stresses. Effects of state of stress, loading rate, time, temperature, and metallurgical structure. 2 hrs and 1 lab or 3 hrs. Prereq: 3120 or 3320, and 4730 or Mech. Engr. 3650 or consent of instructor. Also suggested for mechanical engineering, engineering mechanics, or engineering science students.
4760 Casting and Welding (3) Principles and processes of casting and welding: heat transfer, solidification, segregation, gas-metal and slag-metal interactions, thermal treatments, associated stresses. Prereq: 3120 or 3320. 3 hrs or 2 hrs and 1 lab.
4770 Mechanical Metallurgy III (3) Finite plastic strain. Plastic stress-strain relations. Principles of fabrication: forging, swaging, extrusion, rolling, deep drawing. 2 hrs and 1 lab or 3 hrs. Prereq: 4730 or consent of instructor. Also suggested for mechanical engineering, engineering mechanics, and engineering science majors.

Civil Engineering

Including Environmental Engineering

Professors:

Associate Professors:

Assistant Professors:

*B. Institute, Tullahoma

BACHELOR OF SCIENCE PROGRAM

The curriculum in civil engineering is designed to provide training in fundamental engineering sciences, certain non-technical subjects and basic subjects in various civil engineering fields to serve as a basis for entrance into civil engineering practice, and for graduate study. By use of technical electives (27 hours maximum), a student can specialize as primary or secondary areas of study in construction, environmental engineering, structures, transportation, or water resources. Primary specialization will be shown on student's transcript. Students are required to maintain a cumulative grade point average of at least 2.00 in all civil engineering and environmental engineering courses taken at The University of Tennessee, Knoxville, and used to satisfy the graduation requirements.

MASTER OF SCIENCE AND MASTER OF ENGINEERING PROGRAMS

Graduate programs in civil engineering and environmental engineering leading to the degree of Master of Engineering are offered to graduates of recognized undergraduate curricula.

The general requirements for the masters' degrees are stated in the Graduate Catalog.

DOCTORAL PROGRAM

Graduate work leading to the degree of Doctor of Philosophy with a major in civil engineering is offered. Major fields of study include environmental engineering, structural engineering, transportation, construction management, and water resources.

The general requirements for the doctoral degree are stated in the Graduate Catalog.

Civil Engineering (254)

2260 Engineering Surveys I (3) Accuracy in surveying measurements; principles of errors; control systems and datums; mapping and subdividing areas. Prereq: Math 1850.

2310 Seminar (1) Presentation and discussion of topics related to civil engineering. Prereq: Senior standing.

2360 Engineering Surveys II (3) Positioning of construction facilities; surveying instruments; electronic surveying principles. Prereq: 2260.

3210 Stresses in Framed Structures (3) Reactions, moments, shears and stresses in trusses and framed structures; theory of friction; influence lines for reactions, moments and shears; and graphic statics. Prereq: Engr. Mech. 3310.

3230 Design of Framed Structures (3) Selection of rolled beams; design of compression and tension members and plates and girders. Prereq: 4410 or registration therein.

3310 Physical Properties of Soils (3) Introduction to soils as a construction material, determination of physical properties of soils, factors affecting physical properties of soils, 2 hrs lecture and 1 lab. Prereq: Engr. Mech. 3110 and 3310.

3320 Seminar (1) Presentation and discussion of topics related to civil engineering.

3360 Surveying Practice (3) Route surveying procedures. Two hours lecture. Coreq: 2260.

3600 Transportation Planning (3) Emphasis on transportation problems and perspectives, both rural and urban; use of the planning process to establish transportation facilities; patterns, modeling, demand, proposing alternatives and their evaluation, and plan implementation. Prereq: Junior standing.

3610 Transportation Engineering (3) Introductory course on design, maintenance and operation of various transportation modes, their guidelines and terminals. Prereq: Junior standing.


4110 Concrete Design (3) Reinforced concrete beams and columns; use of standard specifications. Prereq: 3210 and 3710.


4220 Foundations and Substructures (3) Foundation explorations; principles of design of dry and subaqueous foundations. Prereq: 3310.

4230 Legal and Ethical Aspects of Engineering (3) Legal principles underlying engineering work; laws of contracts, negligence, professional responsibility, problems of professional registration and ethics.

4240 Structural Design (3) Plastic theory, eccentric connections, industrial building design, timber design. Two 3-hr periods. Prereq: 3230 and 4410.

4260 Photogrammetry (3) Methods of plotting maps from aerial photographs; stereoscopic plotting instruments; applications. Prereq: 2260, or Forestry Summer Camp for forestry majors.

4320-30 Seminar (1, 1) Selected topics dealing with historical, modern, and professional aspects of civil engineering. Prereq: Senior standing.

4410 Reflections and Statistically Indeterminate Structures (3) Deflections of beams and trusses; analysis of indeterminate beams, trusses, and frames. Prereq: 3210.

4420 Analysis of Framed Structures (3) Maximum stresses due to moving loads; use of influence lines; lateral forces due to earthquake and wind; analysis of portals, building frames and space frames. Coreq: 4410.

4430 Construction Methods and Equipment (3) Fundamental operations in construction selection of equipment; production rates, balancing of equipment, and cost estimates. Prereq: Senior standing.

4460 Land Surveying (3) Procedures of locating properties; evaluating evidence; procedures to describe property, to create land divisions, and to prepare plots; laws of land surveying. Prereq: 2260 or equivalent.

4510-20 Advanced Structural Design (3, 3) Plastic design in steel in 4510; design of typical short span bridges in 4520. Prereq: 3220 for 4510; 3230 and 4110 for 4520.

4530 Cost Comparisons in Design and Construction (3) Cost of engineering and construction. Cost comparison of alternate designs, structure, capacity, applications to civil engineering problems. Prereq: 3230, 4110 or registration therein.

4540 Computer Utilization (3) Computer use, economic justification, and extent of use by industry. Utilization of computers for solution of civil engineering problems. Prereq: 3230 or registration therein.

4550 Engineering Behavior of Soils (3) Plastic and elastic behavior of soils, determination and use of engineering properties of in-situ soils. 2 hrs lecture and 1 lab. Prereq: 4220 or consent of instructor.

4560 Stabilization of Soils (3) Mechanical stabilization of soils by compaction, drainage, and blending; chemical stabilization of soils with admixtures; water-proofing and modifying soils with additives. 2 hrs lecture and 1 lab. Prereq: 3310.

4600 Highway Engineering I (3) Design, construction, operation and maintenance of highway facilities; includes integration of system planning and project planning to construction procedures. Prereq: 2360, 3600 and 3610.

4620 Airport Planning and Design (3) Emphasis on airport master planning; included for consideration on the air side are runway configuration, terminal geometrics and lighting; on the land side are included terminal layout and design, and ground access systems and parking. Prereq: 3600, 3610.

4640 Traffic Engineering (3) Characteristics of driver, vehicle and roadway and their interaction; traffic studies; basic considerations of traffic circulation and control; elements of urban transportation planning studies. Prereq: Senior standing.

4650 Highway Engineering II (3) Integration and application of various engineering principles and techniques to project design with emphasis on design of highway facility through comprehensive team project. 1 lecture and 2 labs. Prereq: 4600.

4660 Airport Planning and Design II (3) Integration and application of principles of airport master planning for purposes of site selection and design of an airport facility through comprehensive team project; includes environmental evaluation of design. 1 lecture and 2 labs. Prereq: 4620.

4710 Portland Cement Concrete Mix Design (3) Properties and tests of portland cement concrete, methods of concrete mix design, nondestructive concrete evaluation testing, use of concrete admixtures. 2 lectures and 1 lab. Prereq: 3710.

4720 Asphalt and Bituminous Concrete (3) Properties and tests of asphalts and asphalt mixes, mix design of bituminous concrete. Emphasis on use of asphalt in transportation construction projects. 2 lectures and 1 lab. Prereq: 3710.

4731-32 Earthquake Resistant Structure I, II (4, 4) (Same as Architecture 4731-32)

4800 Introduction to Civil Engineering Systems (3) Methods of system design and their specific application to problems of transportation, environment, water resources and materials. Prereq: Senior standing or consent of instructor.
4850 Elementary Structural Matrix Methods (4) 
(Same as Architecture 4850 and Engineering 
Science and Mechanics 4850.)

4860 Civil Engineering Systems Design and 
Management (3) Introduction to basic systems 
engineering concepts within a civil engineering 
context; discussion of the role of decision maker 
and use of optimal principles in engineering planning. 
Prereq: Computer Science 3150.

4910-20 Special Topics (3, 3) Problems relating to 
recent developments and current practice in civil 
engineering. Prereq: Consent of instructor.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5110-20 Statically Indeterminate Structures (3, 3)

5140 Statically Indeterminate Structures (3)

5150 Matrix Formulation of Structural Problems (3)

5160 Analysis and Design of Plate Structures (3)

5170 Introduction to Structural Dynamics (3)

5180 Finite Element Structural Analysis (3)

5220 Pavement Design (3)

5240 Advanced Properties of Materials: Cement 
and Concrete (3)

5250 Advanced Properties of Materials: Bitumi- 
 nous Substances and Mixes (3)

5270 Planning and Transportation (3)

5310 Engineering Practice (3)

5320-30 Engineering Practice Applied to Adminis- 
tration of Engineering Projects (3, 3)

5420 Structural Model Analysis (3)

5430-40-50 Construction Management I, II, III 
(3, 3, 3)

5460-70 Construction Estimating I, II (3, 3)

5520 Soil Mechanics—Plastic Equilibrium (3)

5560 Soil Mechanics—Elastic Behavior (3)

5570 Soil Mechanics—Seepage (3)

5610 Behavior of Steel Structures (3)

5730 Prestressed Concrete (3)

5740 Behavior of Reinforced Concrete Members 
(3)

5800 Urban Systems: Engineering and Manage- 
ment I (3)

5805 Urban Systems: Engineering and Manage- 
ment II (3)

5810 Traffic Engineering—Characteristics (3)

5820 Traffic Engineering—Operations (3)

5840 Geometric Design (3)

5850 Functional Design of City Streets and Urban 
Freeways (3)

5860 Urban Transportation Planning (3)

5870 Public Transit Planning (3)

5890 Traffic Accident Reconstruction (3)

5900 Special Problems in Civil Engineering (1-9)

5910-20-30 Special Topics (3, 3, 3)

6000 Doctoral Research and Dissertation

6100 Behavior of Steel Bridges and Buildings (3)

6740 Behavior of Reinforced Concrete Beams and 
Frames (3)

6750 Behavior of Reinforced Concrete Slabs (3)

6830 Traffic Flow Theory (3)

6850 Statewide Passenger Transportation Plan- 
ning (3)

6870 Future Transit Technology and Research (3)

6880 Planning Models for Transportation Systems 
(1-3)

6890 Planning Models for Transportation Systems 
II (3)

6910-20-30 Special Topics in Civil Engineering (3, 
3, 3)

Environmental Engineering (344)

3000 Introduction to Environmental Engineering 
(3) Introduction to man's interaction with the 
air, water, and land environment in which he lives; 
role of engineering in environmental control. 
Prereq: Junior standing.

3120 Hydraulics (3) Application of basic and devel- 
oped principles of hydraulics. Flow measurement; 
flow in closed conduits; uniform and nonuniform 
onopen channel flow; pumps and turbines; basic hy- 
dro-dynamics; flow similitude and models. 2 lec- 
tures and one 3-hr lab. Prereq: Engr. Mech. 3110.

3330 Elementary Hydrology (3) Elements of hy-
drology including both descriptive and quantitative 

4030 Environmental Engineering Chemistry (3) 
Fundamentals of chemistry related to generation, 
formation, and removal of environmental contami-
nants. Analytical techniques for evaluation of spe-
cific air, water, and solid waste pollutants. Prereq: 
3000 and Chemistry 1130.

4150 Urban Water Management (3) Introduction 
to urban water modeling; evaluation of optimum 
urban water policies; formulation of system con- 
straints and analysis of decision-making process; 
management of storm water for beneficial use. 
Prereq: 3000 and 3330.

4210 Water Resources Engineering Design (3) 
Elements of water resource structures and 
systems, including reservoirs, dams, control 
works, and open channel design. Dam safety 
control, environmental impact of reservoir 
projects. Prereq: 3330 or consent of instructor.

4220 Water Resources Engineering Development 
(3) Multi-objective evaluation procedures for com-
paring and selecting among water resources de-
velopments and alternatives; achieving project optimal-
ity; single- and multi-project purposes; special 
topics in new developments in water resources 
engineering. Prereq: 3330 or consent of instructor.

4330 Hydrologic Design (3) Application of fre-
cuency and regression analysis to hydrologic de-
sign of water resources system; steadystate surface 
runoff and streamflow modeling; urban peak runoff 
design using kinematic wave theory; evaluation of 
effects of land use changes on stream flow quantity 
and quality. Prereq: 3330.

4510 Elements of Water and Wastewater Transport 
Systems (3) Introduction to theory and design of 
water transportation and distribution systems and 
water/wastewater collection systems. Prereq: 3000, 
3120 and 3330.

4520 Elements of Water and Wastewater Treat-
ment Systems Design (3) Introduction to unit 
operations and processes employed in physical, 
chemical, and biological treatment of water and 
wastewater. Application of unit operations and 
processes in design of water and wastewater treat-
ment plants. Prereq: 3000 and 3120.

4530 Sanitary Engineering Laboratory (3) Physical, 
chemical, and bacteriological analysis of water and 
wastewater. 3 labs. Prereq: 4030.

4600 Solid Waste Management (3) Quantities and 
characteristics of solid wastes; collection methods 
and equipment; disposal and recycle techniques; 
economics; planning and management. Prereq: 
4000.

4700 Air Pollution-Air Resource Management (3) 
Introductory course on concepts of air pollution 
analysis of meteorology and topographic factors, and adverse

effects on receptors; engineering approaches for 
air pollution control. Prereq: Senior standing.

4810 Water Law (3) (Same as Law 8975 and Water 
Resources Development 4810.)

4820 Environmental Engineering Law (3) Legal as-
pects of water and air pollution, drainage, land use 
controls and environmental impact statements 
with emphasis upon federal-state relations, recent 
legislation and court decisions, and enforcement. 
Prereq: Senior standing.

4910-20-30 Special Topics in Environmental Engi-
neering (3, 3, 3) Problems related to recent devel-
oped and current practice in environmental 
engineering. Prereq: Consent of instructor.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5150 Water and Urban Welfare (3)

5160 Planning and Utilities (3)

5230 Surface Water Transport Processes (3)

5232 Sediment Transportation (3)

5240 Flood Control Hydraulics (3)

5261 Basic Principles of Remote Sensing (3)

5262 Remote Sensing Data Acquisition (3)

5263 Remote Sensing Data Analysis and Interpre-

tation (3)

5301 Stormwater Modeling I (3)

5302 Stormwater Modeling II (3)

5310 Groundwater Transport Processes (3)

5330 Descriptive Hydrology (3)

5400 Introduction to Environmental Systems (3)

5501 Water and Wastewater Treatment Theory I (3)

5502 Water and Wastewater Treatment Theory II 
(3)

5513 Advanced Water and Waste Treatment 
Systems (3)

5530 Environmental Engineering and Natural Sys-

tem Behavior (3)

5581 Water Quality Management (3)

5581 Environmental Management of Water Quality 
(3)

5582 Microbiology for Sanitary Engineers (3)

5593 Advanced Sanitary Engineering Laboratory 
(3)

5600 Solid Wastes (3)

5610 Solid Waste Disposal (3)

5620 Solid Waste Collection Systems (3)

5700 Planning and Air Pollution Control (3)

5710 Air Pollution Control Engineering (3)

5720 Air Pollution Particle Collection Theory (3)

5725 Air Quality Modeling and Impact Assessment 
(3)

5730 Air Pollution Control Device Design (3)

5735 Industrial Source Sampling (3)

5740 Dynamical and Physical Meteorology (3)

5750 Turbulence in the Atmosphere (3)

5760 Diffusion in the Atmosphere (3)

5900 Special Problems in Environmental Engineer-

ing (1-9)

5910-20-30 Special Topics (3, 3, 3)

5990 Environmental Engineering Seminar (1)
Electrical Engineering (320)

Professors:
J. M. Googe (Head), Ph.D. Georgia Institute of Technology, P.E.; J. Alexeff, Ph.D. Wisconsin, P.E.; J. M. Bailey, Ph.D. Georgia Institute of Technology; A. O. Bishop, Jr., Ph.D. Clemson; T. V. Bilko, Ph.D. Tennessee; R. E. Bodenheimer, Ph.D. Northwestern; W. L. Green, Ph.D. Texas A & M; R. C. Gonzalez, Ph.D. Florida; G. W. Hoffman, Ph.D. Harvard; E. C. Huebschmann*, Ph.D. Texas; J. C. Hung, Ph.D. New York, P.E.; E. J. Kennedy, Ph.D. Tennessee, P.E.; W. O. Leftell, M.S. Tennessee; M. O. Pace, Ph.D. Georgia Institute of Technology; Ph.D. Pennsylvania; J. F. Pierce*, Ph.D. Pittsburgh, P.E.; F. W. Rochelle, Ph.D. Maryland; J. A. Roth, Ph.D. Cornell; C. A. Tomaszewski, Ph.D. Tennessee; B. Smith, Jr., M.S. Illinois; P. E.; J. D. Tillman, Jr., Ph.D. Georgia Institute of Technology; S. S. White (President for Continuing Education; Dean, Space Institute), Ph.D. Wisconsin, P.E.

Associate Professors:

Assistant Professors:
J. D. Briel, Ph.D. London; J. L. Bouldin, Ph.D. Vanderbilt; R. D. Joseph*, Ph.D. Case Institute of Technology; J. W. Waller, Ph.D. Tennessee.

*Distinguished Professor
*Space Institute, Tullahoma

UNDERGRADUATE

The Bachelor of Science in Electrical Engineering is planned to provide a foundation in both the basic sciences and specialized areas of modern electrical engineering. The curriculum also contains a suitable amount of cultural work to enhance the education of the student toward the goal of becoming a professional person with strong social awareness. In the senior year, the student may specialize in any one of the following areas of electrical engineering: bioelectric engineering, computer engineering, electromagnetic fields and communications, electronics and instrumentation, energy and power systems, plasma and electro-optics engineering, and systems and networks. All of these areas except the bioelectric engineering option are continued through the S. E. and S. programs. The senior year curriculum is sufficiently flexible to allow a student to take several courses outside of the chosen area of specialization.

All sophomores and junior course work is offered every quarter and the senior work is scheduled so that the student may enter at the beginning of any quarter. This arrangement allows maximum flexibility, since the student may elect the normal four-year schedule, may choose to graduate in three calendar years, or may take the Cooperative Engineering Program.

In addition to the usual research and teaching facilities in machinery, electronics, microwaves, solid state devices and control equipment, the department has both digital and analog computers.

MASTER OF SCIENCE PROGRAM

Graduate work leading to the Master of Science degree may be completed during one academic year of full-time study or the degree may be obtained in two or three years of study in the evening.

Graduate assistantships and scholarships are available for outstanding students. Graduate assistants may obtain the master’s degree in one calendar year.

Course work leading to the degree of Master of Science in Electrical Engineering is offered in the evening. Each course meets for two and one-half hours each week.

THE DOCTORAL PROGRAM

Graduate work leading to the degree of Doctor of Philosophy with a major in electrical engineering is offered. The department also participates in the engineering science doctoral program.

General policies of the Graduate School, residence, language, research, examinations, and admission to candidacy requirements are explained in the Graduate Catalog.


2030 Circuits III (3) Polynaphase networks considered as networks with more than one source. Magnetically coupled circuits. Transient analysis of circuits containing more than one storage element using classical methods. Steady-state analysis of networks containing sinusoidal sources of more than one. Coreq: Math 2020. Math 2040 concurrently. 3 hrs including biweekly lab.

3010 Transient Analysis (3) Analysis of transient response of networks and systems; Laplace transform method and classical differential equation methods for system analysis; complex frequency concept and pole-zero concepts; application to electronic circuits. Coreq: Math 2030.


3050 Basic Field Theory (3) Forces between charges, electric and magnetic fields, Gauss’ law applications, potential, total energy, integrals, magnetic and electric circuits, Maxwell’s equations, dynamic potentials. Coreq: Math 2600.

3060 Propagation I (3) Plane waves, reflection, guided waves, transmission lines, standing waves, impedance, matching, graphical methods, rectangular wave guides. Coreq: Math 2030. 3 hrs including biweekly lab.

3080 Energy Conversion (3) Magnetic circuits, transformer theory and operation, principles of electromagnetic energy conversion with emphasis on input-output characteristics; steady-state analysis of induction motors and d. c. machines. Coreq: Math 2030. Includes a biweekly lab.

3090 Energy Systems Operation (3) Synchronous machines, transmission lines, and transformers as power system elements; power system representation, per unit calculation, symmetrical components, and fault studies. Coreq: Math 2030. Includes a biweekly lab.


3110 Basic Electrical Engineering—Circuits and Fields (3) For non-electrical engineering majors. Coreq: Math 2850. Physics 2120-20. 3 hrs including biweekly lab.

3120 Basic Electrical Engineering—Electronics (3) For non-electrical engineering majors. Coreq: Math 3110. 3 hrs including biweekly lab.

3130 Basic Electrical Engineering—Machinery (3) For non-electrical engineering majors. Coreq: Math 3110. 3 hrs including biweekly lab.

3150 Basic Electrical Engineering Circuits—Instrumentation (3) For non-electrical engineering majors. Use of operational amplifiers for signal processing, logic systems applications, signal conditioning; input-output devices-transducers, recorders, oscilloscopes; automated data collection; safety and grounding requirements. 2 hrs. Coreq: Math 3120.

3180 Logic Design of Digital Systems (3) Introduction to boolean algebra and design of combinational circuits, flip-flop characteristics. Design of clocked sequential circuits and other systems containing memory. Introduction to microcomputer architecture and system components to include basic structure and function of Arithmetic, Storage, Input/output, and Control Systems. Instruction set capabilities and machine language programming. Coreq: Math 3100. Computer Science 3150. 3 hrs including biweekly lab.

3190 Plasma I (3) Engineering applications of physical and electrical effects and devices. Topics include electrostatic precipitators and plasma light sources, laser operation and applications (electro-optic devices). Coreq: Math 2030. Plasma I. 3 hrs including biweekly lab.

3210 Linear Systems Analysis (3) Steady-state and transient response: log-frequency, gain-phase, and polar plots; block diagram transformation; signal flow graphs; analogous systems, properties of second order systems; introduction to feedback theory; stability criteria. Coreq: Math 3100 and Computer Science 3150. Coreq: Math 3180. 3 hrs including biweekly lab.

3270 Linear Systems Analysis (3) Steady-state and transient response: log-frequency, gain-phase, and polar plots; block diagram transformation; signal flow graphs; analogous systems, properties of second order systems; introduction to feedback theory; stability criteria. Coreq: Math 3100 and Computer Science 3150. Coreq: Math 3180. 3 hrs including biweekly lab.

3810 Electronics I—Basic Electronic Processes (3) Current conduction in semiconductors and high vacuum; theory of p-n junctions, characteristics of diodes; rectifiers and diode switch. Coreq: Math 2030. Concurrently. 3 hrs including biweekly lab.

3820 Electronics II—Basic Electronic Devices (3) Characteristics and equivalent circuits of vacuum tubes and transistors; electrical behavior of amplifiers and control circuits. Coreq: Math 2030. 3 hrs including biweekly lab.

3830 Electronics III—Basic Electronic Amplifiers (3) Vacuum tube, class A and C, class B amplifiers; tuned amplifiers; basic power amplifiers; bias stability, feedback. Coreq: Math 2030 and 2820; coreq: Math 3720. 3 hrs including biweekly lab.
4020 Direct Electrical Energy Conversion (3) Basic principles, typical devices and applications for production of electrical energy by thermoelectric effects, thermionic conversion, magneto-hydrodynamics, solar cells. Laboratory demonstrations. Prereq: 3050, 3190 and 3810.

4080 Microwave Circuits and Electronics (3) Circuits represented by wave shattering, isolators, gyrators, couplers, microwave vacuum diodes and keyes, crossed field devices, parametric amplifiers, power generator semiconductors, varactor semiconductor, lab. Prereq: 3060, 3 hrs including bi-weekly lab.

4090 Propagation II (3) Metal tube, dielectric rod, and stripe line waveguides. Waveguide resonators and other loading components. Design of structures utilized for microwave power transmission and for microwave integrated circuits. Prereq: 3060 4 labs.


4410 Power System Components and Control (3) Analysis of power system components and their interconnections. Studies in control of power and frequency as well as voltage and reactive power. Prereq: 3090.

4420 Power Systems Analysis (3) System stability analysis including load flow, faults, and stability. Prereq: 3090.

4430 Transmission, Distribution, and Protection (3) Studies in underground and d. c. transmission; consideration of over-voltages and insulation requirements; system protection against faults. Prereq: 3090.

4460 Lasers and Masers (3) Principles of laser and maser operation based on classical concepts and electrical engineering analogies. Consideration of practical devices and applications. Prereq: Senior standing.


4480 Plasma III (3) Macroscopic plasma equations, particle orbits, interactions, oscillations and waves. Prereq: 3190.


4500 Electro-Optic Detection and Instrumentation (3) Sensitivity, resolution (frequency response) and noise concepts of practical devices and experimental techniques. Spatial recording media (e.g., photographic emulsions) and temporal detectors (e.g., photodiodes) will be given. Last third of the course will be devoted to selected electro-optic instrumentation systems (e.g., laser light scattering, optical data processing, holographic interferometry).


4570 Electro-Acoustics (3) Reproduction of monophonic and stereophonic sound, microphone and loud speakers, disc recording, magnetic recordings, film recording, acoustics of studios, auditories. Prereq: Senior standing.

4600 Instrumentation Transducers and Signal Conditioning Electronics (3) Study of various sensors and transducers utilized for parameter measurement. Use of operational amplifier in signal conditioning design examples such as active filters, amplifiers, attenuators, and function generators. Analysis of interfacing problems between transducers and signal-conditioner. Applications to environmental monitoring instrumentation. Prereq: 3120 or 3830.

4610 Analog-Digital Systems (3) Principles of analog computing components. Applied to analog computer to include problem set-up and scaling. Characteristics of analog multipliers, dividers and function generators are developed. Presents comparators, digital to analog conversion, and analog to digital conversion techniques. Prereq: 3180 and 3830. 3 hrs including bi-weekly lab.

4620 Sequential Machine and Digital System Theory (3) Considers design aspects of pulse-mode, clock-mode, and level-mode sequential circuits. Theory and characteristics of one- and two-dimensional iterative networks. Design of large scale digital systems using MSI and LSI technologies. Introduction to concepts of reliability and error detection in digital systems. Prereq: 3180. 3 hrs including bi-weekly lab.

4630 Digital System Organization and Design (3) Considers system organization of digital systems including microcomputer architecutres and compatibilities. Characteristics of ALU and CPU structures, storage systems (RAM, ROM, and PROM building blocks), and input/output systems are developed. Control Unit organization to include serial-parallel modes of operation, synchronous-asynchronous time sequencing and microprogramming of control functions. Prereq: 3180. 3 hrs including bi-weekly lab.

4660 Bioelectric Instrumentation (3) Nature and origin of bioelectric potentials, transducers, amplifier requirements, recording systems and noise problems. Prereq: Senior standing.

4680 Electronic Power Amplifiers (3) Transistor and vacuum tube amplifiers for audio, magnetic, thermal considerations; r.f. power amplifiers; regulators. Prereq: 3830. 3 hrs including bi-weekly lab.

4690 Communications Electronics (3) Oscillators, modulation and demodulation; basic communication system. Prereq: 3830. 3 hrs including bi-weekly lab.

4700 Switching Circuits (3) Pulse amplification, gating circuits, multivibrators, wave shaping circuits, trigger circuits. Prereq: 3010, 3830. 3 hrs including bi-weekly lab.

4740 Integrated Circuits (3) Processing and fabrication of active and passive components for monolithic and hybrid circuits. Design of linear and digital and large scale integration. Prereq: 3820.

4750 Interactive Computer Graphics (3) (Same as Computer Science 4750 and Geography 4750.)


4800 Hardware-Software Interface in Minicomputer and Microprocessor System Design (3) Pennsylvania-based Mini Computer and Microprocessor Interface design. Hardware-software interaction and tradeoff. Priority interrupt structures are discussed and utilized. Telecommunications developed. Project oriented, contract course. Completion of two projects, one utilizing a minicomputer and the other a microcomputer are minimal course requirements. Prereq: 3180.

4810 Discrete-Data Systems (3) Introduction to analysis and design and discrete data control systems using frequency domain techniques. Real-time digital filter techniques; a high level digital computer in closed-loop feedback systems.

4820 Introduction to Pattern Recognition (3) Role of pattern recognition within framework of artificial intelligence. Topics dealing with the design of learning and adaptive machines. Typical applications of pattern recognition to problems of practical significance. Computer simulation of elementary pattern recognition problems. Prereq: Either 3100 and Computer Science 3150, or Statistics 3450 and Computer Science 1510. (Same as Computer Science 4820.)

4830 Digital Image Processing (3) Principal methods of coding, storing, and processing images by means of digital computers. Computational algorithms for image operations. Prereq: 3100 and Computer Science 3150, or Statistics 3450 and Computer Science 1510. (Same as Computer Science 4830.)

4850 Small Computer Systems (3) Basic structure of small computer systems, input-output techniques, interrupt structures, peripheral devices, system software and assembly language programming. Course is project oriented. Prereq: Basic Engineering 1410, Computer Science 1510 or 3150 or consent of instructor. (Same as Computer Science 4850.)

4910-20-30 Special Electrical Engineering Problem (3, 3, 3) Problems in electrical engineering involving library and experimental research.

GRADUATE

5000 Thesis

5040-50-60 Electrical Engineering Research (3, 3, 3)

5070-80 Modern Transform Methods (3, 3)

5110 Introduction to Network Analysis (3)

5120 Network Synthesis and Design (3)

5130 Advanced Network Analysis (3)

5170 Bioengineering Systems I: Models, Systems Analysis and Simulation (3)

5180 Bioengineering Systems II: Bioelectric Phenomena (3)

5190 Bioengineering Systems III: Instrumentation and Analysis (3)

5210-20 Advanced Electrical Machinery (3, 3)

5230 Advanced Electrical Machinery Applications (3)

5240-50-60 Control Systems (3, 3, 3)

5310 Basic Requirements for Plasma Fusion (3)

5320 Diagnostics for Fusion (3)

5330 Engineering of Fusion (3)

5340 Introduction to Quantum Electronics (3)

5350 Properties of Quantum Devices (3)

5360 Application of Quantum Electronic Devices (3)

5370 Advanced Direct Electrical Energy Conversion I (3)

5380 Advanced Direct Electrical Energy Conversion II (3)

5390 Advanced Direct Electrical Energy Conversion III (3)

5410 Power System Networks (3)

5420 Fault and Load Flow Studies (3)

5430 Power System Stability and Control (3)
Engineering Science and Mechanics


*Space Institute, Tulahoma

BACHELOR OF SCIENCE PROGRAM

The curriculum in engineering science will provide students an opportunity for education in science, mathematics, engineering science, mathematics, and physical (or biological) science. Such a program will prepare students for a career in engineering development and research, professional education at the M.S. level, or additional graduate study leading to the master's or the doctoral degrees. The curriculum will provide students a broad engineering education which permits a strong emphasis on engineering principles and basic science.

In the first two years students in the engineering science program study engineering science, and mathematics. The engineering science program in the upper-division years is essentially an elective curriculum in which the special interests of students can be met which cannot be accommodated in other programs. Examples of special interest elective groups presently available in the engineering science program are biomedical engineering, engineering mechanics, engineering analysts and synthesis, environmental sciences, and engineering materials. Other elective groups are currently being developed and will be available in the future.

The biomedical engineering elective group provides the basic background for an engineer to contribute to the fields of biology and medicine in such technical areas as the 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, to analyze medical data, and to contribute to the broad area of health care delivery systems. Interested and qualified students may choose to use this program as a background for graduate study in engineering or the life sciences. The program includes the courses required for entrance into most medical schools, including The University of Tennessee Center for the Health Sciences in Memphis.

The engineering mechanics elective group focuses on analytical and experimental methods used in investigating the interaction of forces and matter. It is designed to enable students to develop the capabilities of engaging in research and development in industrial and governmental research laboratories. Because such preparation involves emphasis on the linking between the basic sciences and engineering fundamentals, the engineering mechanics elective group provides a good theoretical background for students wishing to pursue engineering graduate study.

The engineering analysis and synthesis elective group affords a concentration on the application of such mathematical techniques as numerical analysis and similitudes for the solution of practical engineering problems. As such, heavy emphasis is placed on the use of digital computers.

The environmental sciences elective group introduces the student to some of the areas of knowledge and to some of the basic skills involved in engineering efforts aimed at solving environmental and ecological problems. This program gives the necessary background in both stress/structural analysis for a higher level of competence in this specialty during professional practice or through formal graduate study.

The engineering materials elective group provides background in the use of materials in the solution of engineering problems. This includes the selection of the proper materials to support the anticipated loads and consideration of the environmental conditions that are expected to exist during the design life of the system. There is a special need in industry for individuals with background in both stress/structural analysis and materials properties. The engineering materials elective group provides the student an opportunity to acquire this background.

The basic engineering science curriculum provides an opportunity to study significant blocks of the engineering science areas recognized by the American Society for Engineering Education such as (1) mechanics; (2) electrical science, and magnetic fields, circuits, and electronics; (3) thermodynamics and statistical mechanics; (4) materials science; (5) information science; (6) transfer and rate processes such as heat, mass, and momentum transfer. Other modern engineering fields which may be studied in the engineering science option are the space sciences and the environmental sciences. It is not expected that a student will study all the engineering sciences, but will structure the course plan to provide depth in some of the engineering sciences.

Because of the large number of elective courses to be selected in the engineering science degree program, faculty advising plays an essential role in the process of developing the student's
course of study. Before the end of the sophomore year, students in the engineering science programs are required to develop, in concert with a faculty adviser, a statement of objectives and a course plan for the upper-division years.

This course plan must be filed with the Office of Admissions and Records before the students with more than 90 quarter hours can register for courses, and before the student's senior standing sheet can be prepared.

MASTERS OF SCIENCE AND DOCTORAL PROGRAMS

Graduate programs leading to the degrees of Master of Science and Doctor of Philosophy with a major in engineering science are available to graduates of recognized curricula in engineering, mathematics, or one of the physical or biological sciences. Program options include solid mechanics, fluid mechanics, biomechanics, and other engineering sciences. In the biomedical and engineering science option, interdisciplinary programs are arranged to meet individual needs or interests. Each applicant will be advised to select a program's 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 industry for re-employment, 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 are preparing for employment in engineering areas requiring specialization in mechanics, or in related interdisciplinary studies such as biomechanics.

General policies of the Graduate School relating to admission, residence, examinations, and research are described in the Graduate Catalog.

Engineering Science and Mechanics (335)

2705 Elementary Statics and Dynamics (3) Resolution and composition of forces; moments; resultants of force systems; free body diagrams and coplanar equilibrium; friction; particle dynamics. (Primarily for transfer students.) Prereq: College Physics (Mechanics); coreq: Math 1850 or equivalent.

2710 Statics (3) Resultants of space force systems; static equilibrium of structural elements and space frames; belt friction; first and second moments. Prereq: 2705 or Basic Engineering 1510, Math 1860.

2720 Dynamics (3) Absolute and relative kinematics of rigid bodies; kinetics of rigid bodies using Newton's laws; work, energy, and impulse-momentum. Prereq: 2705 or Basic Engineering 1320, Math 2840.

3110-20-30 Fluid Mechanics (3, 3, 3) Basic laws of fluids; effects of viscosity and compressibility; empirical and semi-empirical relations; properties of boundary-layer concepts; potential flow. Must be taken in sequence. Prereq: 2720, 3700, Math 2840; coreq for 3120: Mech. Engr. 3311 or equivalent.

3310-20 Mechanics of Materials (3) Concepts of stress and strain, stress-strain relations, and Mohr's circle. Basic concepts of solid mechanics: stress and strain;虎式 pressure vessels, shafting; determinate, indeterminate, and nonhomogeneous beams; column theory. Must be taken in sequence. Prereq: Basic Engineering 1310; coreq: Math 2840.

3311 Mechanics of Materials (4) Concepts of stress and strain; stress-strain relations and Mohr's circle; static analysis of members; area moment of inertia; stress and displacement analysis of axially-loaded members; torsion; bending. Not for department graduate credit. Prereq: Basic Engineering 1310; coreq: Math 2840.

3410 Introduction to Biomedical Engineering (4) Designed to introduce the facets and opportunities of biomedical engineering, and to provide basic terminology and background knowledge for further courses in the field. Subjects include anatomy, physiology, biomaterials, mathematical models of body systems, etc. Coreq: Math 2840 or consent of instructor.

3420 Introduction to Clinical Engineering (3) Designed to train students in life sciences, health professions, management, and related fields for many areas of clinical environments and applications of medical instrument systems. Body systems are introduced, and instruments used in care of those systems are presented and demonstrated. Prereq: 3410, or consent of instructor.

3430 Perspectives on Medical Ceramics (3) Development of implant material from both an engineering and medical point of view. Details and demonstrates results of combined efforts of physician and biomedical engineer. Audits is and models are used to reinforce lecture topics. Prereq: 3410 and Metallurgical Engineering 2110.

3439 Medical Ceramics Laboratory (1) Surgical observations and laboratory experiments to illustrate design and application parameters. Design project or paper required. Coreq: 3430.

3510 Materials of Engineering (3) Mechanical properties of engineering materials; static behavior of materials under load, 3 hrs or 2 hrs and 1 lab. Prereq: 3311 and Metallurgical Engineering 2110 or 3110.

3520 Materials Behavior and Chemical Process Equipment Design (3) Same as Metallurgical Engineering 3190.

3700 Dynamics (4) Kinematics of rigid bodies; mass moment of inertia; coulomb friction; kinet- ics of rigid bodies using force, mass, acceleration; work-energy, impulse-momentum. Not for department graduate credit. Prereq: 2705 or Basic Engineering 1320, Math 2840.

3710 Intermediate Dynamics (3) Three-dimensional dynamics of particles and rigid bodies; dynamics of bodies with varying mass; central force motion; Lagrange's equations. Prereq: 2720, Math 2850.

4010 Project in Design and Development (4) Investigation, design, and report of an engineering science project. Prereq: 3700, Mech. Engr. 3311, Math 3700, and 3710.

4011 Project in Design and Development (4) Investigation, design, and report of an engineering science project. Prereq: Senior standing.

4420 Engineering Aspects of Infection Control (3) Biomedical engineer's role in infection control will be introduced to hospital and clinical services. Fluid flow phenomena, pressure measurement methods, and basic bacteriological and mycologi- cal tests will be introduced. Course identifies new and critical role for biomedical engineering in health care systems, and includes analysis of hospital facility and medical systems. Prereq: 3410, or consent of instructor.

4430 Orthopaedic Biomechanics (3) Introduction to engineering principles and applications in orthopaedic and sports medicine. Topics include statics and Newton's laws of motion, stresses in simple sections, engineering materials, and biological materials. Prereq: 3120.

4500 Applied Mechanics for Life Scientists (4) Concise and broad coverage of basic principles and concepts of mechanics. Fundamental con- cepts, vector, statics, continuum mechanics and properties of materials. Applications to engineering and medicine. Prereq: Math 1860 or consent of instructor.

4520 Biomedical Fluid Mechanics (3) Discusses objective, review fundamental and current developments in biomedical fluid mechanics. Properties of human blood and blood vessels, determinants of cardiac performance, analysis and measurement of flow and pressure in arteries, nontraumatic study of circulatory system, mechanics of microcirculation. Applications to areas of hemostasis, thrombosis, and fluid dynamics of heart assist devices. Prereq or of a course in fluid me- chanics or consent of instructor.

4529 Biomedical Fluid Mechanics Laboratory (2) Measurement and recording of flow characteristics in biological system. Project and/or term paper required. Coreq: 4520.

4530 Biomechanics (3) Discusses objectives, review foundations and present developments in areas of mechanical properties of living tissues, biome- chanics of systems; material compatibility of prosthetic devices and their biomedical problems related to impact. Prereq: 4500 or consent of instructor.

4540 Fracture-Safe Design (3) A critical review of mechanical properties that are indicative of fracture resistance, including transition temperature, R-curves, stress intensity factors, and J-integrals; the use of finite element design. Prereq: 3 hrs or 2 hrs and 1 lab. Prereq: 3311 and Met. Engr. 2110. (Same as Met. Engr. 4540.)

4580 Principles of Nondestructive Testing (3) (Same as Physics 4580.)

4610 Experimental Stress Analysis (3) Basic con- cepts, theory, techniques, areas of application resistance stress gauges; theory and techniques of brittle-coating method; introduction to other strain analysis methods. Prereq: 3311, EE 3200 or 3110, 2 hrs and a 3-hr lab.

4620 Dynamic Data Acquisition (4) Instrumentation of measuring systems for dynamic events and responses; signal conditioning: oscillographs, oscilloscopes, and magnetic tape recording; telen- estry and data transmission; digital processing. Prereq: 3700, 3311, Elec. Engr. 3120, 3 hrs and a 3-hr lab.

4630 Introductory Photonics (3) Introduction to photoelectricity, photoelectric coating methods, macroscopic, interferometry, and holography. Prereq: 3311, Physics 2320, 2 hrs and a 3-hr lab.

4710 Fundamentals of Vibrations (3) Free and forced vibrations of damped and undamped lumped parameter systems; energy methods. Prereq: 2720 or 3700, Math 2860.


4810-20 Engineering Analysis (4, 3) Integration of fundamental physical laws and mathematical methods of analysis and their application to realistic engineering problems. Prereq: 3110, 3311, and Computer Science 3150.

4850 Elementary Structural Matrix Methods (4) (Same as Architecture 4850 and Civil Engineering 4850.)

4910-20 Special Engineering Science Topics (3, 3) Problems related to recent developments and practice. Open to juniors or seniors with consent of instructor. May be repeated for credit once.
GRADUATE
5000 Thesis
5002 Non-Thesis Graduation Completion (3-15)
5110-20 Fluid Dynamics (3, 3)
5130 Introduction to Turbulence (3)
5140 Finite Element Methods in Fluid Mechanics (3)
5180 Finite Element Structural Analysis (3)
5220 Mechanics of Viscous Flow (3)
5230 Non-Newtonian Fluid Mechanics (3)
5410-20 Theory of Elasticity (3, 3)
5430 Thermal Stresses (3)
5440 Theory of Linear Viscoelasticity (3)
5550 Fracture Mechanics (3)
5630-40 Photoelasticity (3, 3)
5710-20 Advanced Dynamics (3, 3)
5730 Advanced Vibrations (3)
5740 Vibrations of Continuous Media (3)
5750 Orbital Mechanics (3)
5800 Introduction to Continuum Mechanics (3)
5840 Perturbation Methods in Mechanics
5860 Introductory Finite Element Methods (3)
5910 Special Topics in Engineering Mechanics (3)
6000 Doctoral Research and Dissertation
6110-20 Advanced Topics in Fluid Mechanics and Convective Transfer (3, 3)
6140 Advanced Finite Element Methods in Fluid Dynamics (3)
6230-40-50 Theory of Turbulence (3, 3, 3)
6310 Theory of Plates (3)
6320 Analysis and Design of Thin Shell Structures (3)
6330 Theory of Elastic Stability (3)
6340 Theory of Plasticity (3)
6610 Photoelasticity (3)
6710 Impact and Stress Waves in Solids (3)
6800 Non-Linear Viscoelasticity (3)
6810 Energy Methods (3)
6910 Special Topics in Engineering Mechanics (3)

Engineering Physics
Professor W.M. Bugg (Head); Physics staff as shown on page 224.

The curriculum in engineering physics is designed to fulfill the educational requirements for professional work in various fields of applied science which are based upon a thorough knowledge of physics. The first two years are concerned with fundamental courses in engineering, science, and mathematics. In the upper division, the curriculum allows some choice of courses in engineering and in physics depending upon the interest of the student. The undergraduate program is a complete, professional program, equipping the student for entry into a variety of work in industry and research. The program also leads to graduate work in either physics or engineering. The courses in the engineering physics curriculum are shown in tabular form on page 131. Descriptions of the physics courses are found on page 224.

MASTER OF SCIENCE PROGRAM
The graduate program in industrial engineering contains a basic requirement of 18 hours of course work covering topics in industrial engineering at the graduate level. The remaining 18 hours in the program are based on the educational objective of the student and determined with the approval of the student's adviser. A minor is usually taken in an area related to industrial engineering, and a thesis is required. The program is open to graduates of recognized curricula in all fields of engineering.

A non-thesis program of 45 hours of course work plus a three-hour project is also available and open to graduates in engineering or science. Basic courses (5110, 5520 and 5700, 5710, 5720) are 18 hours of the total and are identical to the basic courses in the program for thesis students. An option is selected from manufacturing, health systems, operations research, human factors or decision processes. Each option requires 9 hours of non-engineering electives to support the selected option. The project requires the design of a procedure or operating system based especially upon the course work in the selected option and clearly applicable as a solution to a problem in actual professional practice. The student is examined on the project and related course work.

2310 Seminar (1) Introduction to the industrial engineering profession, its history and current trends. Plant trips and lectures by the faculty. Prereq: Sophomore standing.
2320 Modeling of Industrial Processes (3) Introduction to model building. Techniques of developing models of industrial processes, elementary simulation techniques, and concept of optimization. Prereq: Basic Engineering 1410.
3330 Computer Applications and Analysis Methods in Industrial Engineering (3) Use of digital computer in problem solving involving matrix operations, deterministic and stochastic simulations, large scale data base manipulation, and general optimization techniques. Prereq: 2320 and Mathematics 1860.
3410 Textile Industry Systems (3) History, basic operations, products and economics of the industry, the application of industrial engineering techniques. Prereq: Junior standing and consent of instructor.
3440 Quality Control (3) Application of statistical methods to control quality of manufactured parts and techniques of inspection. Prereq: 3430.
3510 Introduction to Operations Research I (3) Introduction to methodology of operations research and the application of operations research to industrial problems. Topics covered include statistical inference, decision theory, and queuing theory. Prereq: 3430 and Computer Science 3150.
3520 Introduction to Operations Research II (3) Introduction to mathematical programming includes classical optimization theory, linear programming (with emphasis on the simplex method, the transportation problem, and the assignment problem), and dynamic programming. Prereq: Computer Science 3150 or consent of instructor.

Industrial Engineering (556)
J.N. Snider (Head), Ph.D. Ohio State, P.E.; D.C. Doucet, M.E.; E.A. Emerson (Emeritus), S.B. Massachusetts Institute of Technology, P.E.; R.M. LeFarge (Emeritus), M.S. Georgia Institute of Technology, P.E.; H.L. Loveless, M.S. North Carolina State, P.E.

Associate Professors: E.K. Boyce, M.S. Tennessee; J.R. Buchan, Georgia Institute of Technology; W.P. Claycombe, Ph.D. Virginia Polytechnic; D.H. Hutchinson, Ph.D. Georgia Institute of Technology; W.A. Lyday, M.S. Tennessee; W.G. Suman, Ph.D. Georgia Institute of Technology, P.E.

Assistant Professors: E.L. DePorter, Ph.D. Virginia Polytechnic; M.L. Eaton, M.S. Clarkson, P.E.; M.K. Goodman, M.S. Tennessee, P.E.

Kingsport
UNDERGRADUATE
The undergraduate curriculum in industrial engineering provides a strong background in both fundamental engineering principles and the analytic methods necessary for solving the multi-faceted problems associated with the production, maintenance, and delivery of goods and services. In particular, this curriculum emphasizes the knowledge and skills necessary to design integrated systems of people, materials, equipment, and energy wherever they are found, such that the overall system functions at an optimal level and such that the needs of the human components of the system are adequately met.

This curriculum, which is built upon a strong background in mathematics and statistics, includes fundamental course work in all of the engineering sciences, Introductory economics and accounting, training in fundamental human factors which influence engineering design, the economic analysis of alternative design choices, quality control techniques, manufacturing processes and materials, production and inventory system design and control, material handling systems and facilities design, the mathematical modeling and simulation of complex systems, and the design and installation of information acquisition and control systems. The technical and non-technical electives further allow the students to specialize in an area(s) which meet 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.
BACHELOR OF SCIENCE PROGRAM

Separate, complete curricula are offered in aerospace engineering and mechanics 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 general engineering preparatory 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 or aerospace engineering problems. Both curricula are arranged with flexibility in the upper-division years to permit emphasis on preparation for graduate study or technical employment.

Aerospace engineering has scientific foundations close to those of mechanical engineering. The aerospace engineer, however, devotes attention particularly to the research, development, design, testing, and production of aircraft, spacecraft, missiles, auxiliaries—heating, cooling, guidance, control; and propulsion systems—piston engines, turbo-jets, ramjets, rockets.

Mechanical engineering has its foundation in the basic sciences and requires an understanding of such areas of applied science as solid and fluid mechanics, thermodynamics, heat transfer, structures, vibrations, mechanical design, manufacturing processes and instrumentation in order to resolve the complex engineering problems of the real world.

In the mechanical engineering curriculum, the student, with the aid and approval of an adviser, must select a senior year program of mechanical engineering and technical electives. The following areas of concentration are available:

Energy. A study of energy conversion systems and the laws governing energy transformations. This option includes the design and analysis of conventional and future power generating systems utilizing various energy sources. The central courses are Mech. Engr. 4140-50-60.

Environment. A study of the systems which control the environment within enclosed spaces. The program includes the design and analysis of air conditioning, refrigeration, and heat pump devices encompassing heating, cooling, ventilation, humidifying, and noise control. The central courses are Mech. Engr. 4710-20-30.

Manufacturing. A study of manufacturing methods and production processes common to mass production industries. The program includes the selection of processes, design of tools and fixtures, numerical control, and analysis and design of the total manufacturing system. The central courses are Mech. Engr. 4621-22-23-24 with related courses in metallurgy.

Machine Design. The study and application of the principles of mechanics, materials, and manufacturing processes to the design and analysis of machine elements, machines, and structures. The central courses are Mech. Engr. 4660 and 4690.


Aerospace. The study of aircraft and spacecraft including the mechanics of flight and related systems and propulsion devices. The program includes the analysis and design of a variety of aerospace vehicles and systems. The central courses are Aero. Engr. 4240-50-60.

GRADUATE STUDY PROGRAMS
Graduate programs leading to the degrees of Master of Science, Master of Engineering, and Doctor of Philosophy, with specialization in mechanical engineering or aerospace engineering are available at graduate level in mechanical engineering, aerospace engineering, and other curricula for graduate study in mechanical or aerospace engineering and to graduates of other curricula who satisfy the necessary prerequisite courses. The general requirements for advanced degrees are summarized in the Graduate Catalog.

Mechanical Engineering (650)

2040 Introduction to Mechanical Engineering (1) Presentation and discussion of topics related to mechanical engineering. S/NC.

3000 Energy—An Overview (4) Introduction to available energy resources, recovery and utilization; power generation techniques including conservation schemes; emphasis on the resources—environment-man interaction associated with energy; primarily for non-engineering students.

3040 Seminar (1) Presentation and discussion of topics related to mechanical engineering. Prereq: Junior standing. S/NC.


3311 Engineering Thermodynamics (3) Energy and laws governing energy transformations; thermodynamics properties. Prereq: Basic Engr. 1330, Chem. 1130, and Math 1680.

3321-30 Engineering Thermodynamics (2, 3) Properties of gases and gas mixtures; chemical reactions; equilibrium; applications to mechanical engineering problems. Prereq: 3311 and 3321 respectively.

3410 Fluid Flow (3) Development of continuity, momentum and energy principles for fluid systems; applications to mechanical and aerospace engineering problems. Prereq: Math 2650; coreq: 3311.


3520-30-40 Thermal Sciences (3, 3, 3) Fundamental principles of thermodynamics and transport phenomena as applied to engineering design. For non-departmental majors. To be taken in sequence. Prereq: Math 2650 and Basic Engr. 1330.


3620 Mechanics of Machinery—Dynamics (3) Applications of Newton's laws, work, energy, and imp- pact to machinery. Force analysis of mechanisms, balancing, gyroscopic effects, fly-wheels. Prereq: 3610.


3660 Manufacturing Processes (3) Selection of processes as related to the design of machine parts. Casting, hot and cold forming, metal removal and weldments. Manufacturing tolerances and surface finishes. 2 hrs and one 2-hr lab. Prereq: Met. Engr. 2110.


4010 Thesis (3) Problem investigation and report. Prereq: Senior status.


4150 Energy Conversion Systems (3) Operating and design characteristics of new technology energy conversion systems and methods of direct conversion techniques. Prereq: 3330, 4420.

4160 Energy Conversion Systems (3) Economic and technical design parameters as applied to power plants for public utilities or industrial applications; selected design and layout problems. Prereq: 4150-60.

4170 Turbo-Machinery (3) Basic principles of turbomachinery; systematic methods of analysis and design, performance evaluation. Prereq: Aerospace Engr. 3511.

4180 Energy Production and Utilization (3) Thermodynamic constraints on energy production; comparison of new energy sources and concepts; energy conversion schemes. Prereq: Senior standing in engineering.

4220 Environmental Noise (3) Basic principles of acoustics—measurement and control of noise in industrial and community environments. Prereq: Senior standing in engineering or consent of instructor.

4310 Seminar (1) Discussion of topics related to engineering; includes inspection trips to industrial plants. Prereq: Senior standing. S/NC.

4320 Seminar (1) Presentation and discussion of topics related to engineering. Prereq: Senior standing.


4450 Lubrication (3) Hydrodynamic theory of lubrication of sliding bearings; application of Navier-Stockes equations to in-line and finite bearings; analytical and numerical solutions; applications to design. Prereq: 3440, Aerospace Engr. 3511.

4471-91 Experimental Mechanical Engineering (3, 3) Experimental methods and measurements of force, length, time, temperature, pressure, transmission, and other characteristics. Prereq: 3321, 3410, 3440, Engr. Sci. & Mech. 3320 for 4471; 4417 and 4420 for 4491.

4510 System Dynamics (4) Analytical models of physical, mechanical, thermal, and other systems that transform, dynamic characteristics and stability of systems, numerical simulations, and analog computer solutions. Not for departmental graduate
credit. Prereq: 3610 or Aerospace Engineering 3520 or Atmospheric Engineering 3511 and Electrical Engineering 3110.

4520-30 Creative Design (3, 3) Application of engineering principles to the solution of current problems with emphasis on design innovation. Prereq: Consent of instructor.

4621 Manufacturing Processes (3) Comparison of machining methods; plastic production; metallography. Prereq: 3650 and 3660 or consent of instructor.

4622 Tool Design (3) Principles underlying tool and die design, design of high-volume production tools and molds, work holding fixtures. Prereq: 3650-60 or consent of instructor.


4625 Manufacturing Process Engineering I (3) Production technology: dimensional analysis of size and form; true position tolerance; tolerance analysis; and workpiece control for production to tolerance. Prereq: 5660 or IE 4040.

4631 Energy Methods in Mechanical Design (3) Application of heat transfer principles in complex beams and structures. Prereq: 3630, 3650, and Computer Science 3150 or consent of instructor.


4633 Matrix Analysis (3) Application of matrices to solution of complex structures and lumped parameter vibration systems. Prereq: 4632.

4660 Materials and Manufacturing Process (3) Selection of materials in design process, emphasizing relationship between stress and strain analysis, material properties, environment, temperature, manufacturing technology and cost. Prereq: 3650, 3660.


4690 Machine Design (3) Innovative design of complete machines; documentation including specifications, design calculations, working drawings and cost analysis. Written and oral report. Prereq: 4670, 4680.

4710 Thermal Environmental Systems (3) Vapor compression refrigeration systems; heat pump systems; moist air properties; psychrometric processes. Prereq: 3330, 3440.

4720 Thermal Environmental Systems (3) Design analysis of air washers, cooling towers and extended surface coils; solar radiation; building heat transmission; physiological effects. Prereq: 4420, 4710.


4740 Solar Energy Utilization (3) Nature and availability of solar radiation; determination of effects of selected heat transfer processes pertinent to solar energy collection and use; design analysis of solar energy collectors and method of storage; selected applications. Prereq: 3321, 4420, or consent of instructor.

4810 Internal Combustion Engines (3) Thermophysical phenomena in internal combustion and propulsion engines. Combustion, detonation; equilibrium; dissociation. Analysis of internal combustion engines using ideal and real fluids. Prereq: 3330, 3440.


4910-20-30 Selected Topics in Mechanical Engineering (3, 3, 3) Problems related to developments and practice in mechanical engineering. Prereq: Consent of instructor.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5110 Conduction Heat Transfer (3)

5120 Convection Heat Transfer (3)

5130 Radiation Heat Transfer (3)

5140 Phase Change Heat Transfer (3)

5210 Classical Thermodynamics (3)

5220 Microscopic Thermodynamics (3)

5230 Special Topics in Thermodynamics (3)

5310 Intermediate Fluid Mechanics (3)

5410-20-30 Research in Mechanical Engineering (3, 3, 3)

5510-20-30 Mechanical Engineering Design (3, 3, 3)

5540-50-60 Advanced Strength of Materials (3, 3, 3)

5610-20-30 Experimental Stress Analysis (3, 3, 3)

5840-50-60 Turbo-Machinery Systems (3, 3, 3)

5870 Dynamic Modeling and Simulation (3)

5900 Selected Engineering Problems (3-9)

5950 Seminars (1)

5990 Special Topics in Mechanical Engineering (1-3)

6000 Doctoral Research and Dissertation

6110-20 Advanced Topics in Fluid Mechanics and Convective Transfer (3, 3)

6130-40 Advanced Radiation Heat Transfer (3, 3)

6420-30 Selected Topics in Thermodynamics (3, 3)

6610 Engineering Vibrations (3)

Aerospace Engineering (018)

2040 Introduction to Aerospace Engineering (1) Presentation and discussion of topics related to aerospace engineering. S/N/C.

3040 Seminar (1) Presentation and discussion of topics related to aerospace engineering. Prereq: Junior standing. S/N/C.


3620 Mechanical Vibrations (3) Free and forced vibrations of single and multiple degree vibrating systems, balancing of rotating machinery. Prereq: 3610 and Mech. Engr. 3910.


4010 Thesis (3) Problem investigation and report. Prereq: Senior standing.

4110 Aerodynamic Fundamentals (3) Atmosphe, dynamics and thermodynamics of perfect gases, fluid flow types, airfoil theory, wing theory, drag. For non-aerospace engineering majors only. Prereq: Consent of instructor.

4120 Aircraft Propulsion and Performance (3) Propellers, propulsion systems for aircraft, static performance and special performance problems, maneuvers, control surfaces, stability and control. For non-aerospace engineering majors only. Prereq: 4110.


4220 Low Speed Aerodynamics (3) Potential flow theory; kinematics and dynamics of perfect fluids; analysis and design of aerodynamic bodies. Prereq: 3511 and Mech. Engr. 3910.

4230 Viscous Flow (3) Boundary layer theory; laminar and turbulent flow; compressibility effects; numerical solution methods. Prereq: 3511 and Mech. Engr. 3910, 4420.


4310 Seminar (1) Discussion of topics related to engineering; includes inspection trips to industrial plants. Prereq: Senior standing. S/N/C.

4320 Seminar (1) Presentation and discussion of topics related to engineering. Prereq: Senior standing.


4510 Airplane Performance (3) Introduction to airfoil and wing characteristics; drag; propellers; static performance and maneuvers; theory and design of control surfaces; stability. Prereq: 3511.

4910 Selected Topics in Aerospace Science (3) Current problems in aerospace science: topics in science and engineering required for an understanding of the areas of aerospace science. Prereq: Consent of instructor.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5110 Fundamentals of Aerodynamics (3)

5120 Experimental Methods in Fluid Mechanics (3)

5150-60-70 Vehicle Aerodynamics and Performance (3, 3, 3)

5210-20 Aerodynamics of Compressible Flows (3, 3)

5240 Dynamics of Viscous Flows (3)
5250 Introduction to Hypersonic Flow (3)
5260 Selected Topics in Aerodynamics (3)
5270-80-90 Aerospace Ground Test Facilities (3, 3, 3)
5310 Magnetohydrodynamics (3)
5340-50 Atmospheric Entry (3)
5440-50 Transonic Flow (3, 3)
5510-20-30 Aerospace Mechanics (3, 3, 3)
5540-50 Aerospace Vehicle Stability and Control (3, 3)
5560 Vertical or Short Take-Off and Landing Aircraft (3)
5570 Aerospace Vehicle Flutter and Vibration (3)
5580-90 Aeroelasticity (3, 3)
5610 Applied Acoustics (3)
5620 Aeroacoustics I (3)
5810 Aviation Systems: An Overview (3)
5820 Air Vehicles (3)
5900 Selected Engineering Problems (3-9)
5980 Seminars (1)
5990 Special Topics in Aerospace Engineering (1-3)
6000 Doctoral Research and Dissertation
6310-20-30 Magnetohydrodynamics (3, 3, 3)
6410-20 Physical Gasdynamics (3, 3)
6510-20-30 Advanced Aerodynamics (3, 3, 3)
6810 Advanced Boundary Layer Theory (3)
6910 Advanced Topics in Gas Dynamics (3)

Nuclear Engineering (716)

Professors:
P. F. Pasqua (Head), Ph.D. Northwestern, P.E.;
T. W. Kerlin, Jr., Ph.D. Tennessee;
H. G. MacPherson (Emeritus), Ph.D. California (Berkeley); J. T. Milhalco, Ph.D. Tennessee;
J. E. Mott, Ph.D. Minnesota; J. C. Robinson, Ph.D. Tennessee; P. N. Stevens, Ph.D. Northwestern, P.E.

Associate Professors:
H. L. Dodds, Ph.D. Tennessee, P.E.; J. B. Fussell, Ph.D. Georgia Institute of Technology;
H. C. Roland, Ph.D. Tennessee; O. L. Smith, Ph.D. Missouri.

Assistant Professors:
E. M. Katz, Ph.D. Tennessee; L. F. Miller, Ph.D. Texas A & M.

BACHELOR OF SCIENCE PROGRAM

The curriculum in nuclear engineering is designed to provide basic training in many of the fields encountered in the applications of nuclear and radioactive materials. The first two years are concerned with the fundamental courses in engineering, physics, mathematics, chemistry, and English. The last two years encompass scientific and engineering courses equipping the student for entry into a variety of work in industry, research, or graduate studies.

MASTER OF SCIENCE AND MASTER OF ENGINEERING PROGRAMS

A graduate program leading to a degree of Master of Science and Master of Engineering is available to graduates of recognized undergraduate curricula in engineering and physics. Each applicant will be advised as to the necessary prerequisite courses before entering the program.

The general requirements of the masters' degrees are summarized in the Graduate Catalog.

DOCTORAL PROGRAM

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

2310-20-30 Seminar (1, 1, 1) Presentation and discussion of topics related to nuclear engineering. S/INC.


3300 Introduction to Reactor Analysis (3) Nuclear reeactions and radiations, cross section, fission process, diffusion and slowing down, steady state reactor theory, criticality, condition, reflected reactor. Prereq: Physics 3720; Math 4710.

3340 Environmental Effects of Nuclear Technology (3) Study of effects on environment since advent of military and peaceful uses of nuclear energy. Prereq: One year of biological or physical science.

3510 Dynamics and Controls (3) Systems differential equations; solution by classical methods; Laplace transform method; frequency response, stability, and control. Coreq: 4110.

3210-20 Thermodynamics (4, 4) Properties and laws of thermodynamic systems. First and second laws used to analyze power plant systems—both fossil and fission. Prereq: Math 2860 and Basic Engr. 1330.

3730 Momentum Transport (4) Development of differential and integral momentum equations; elementary theory of turbulence, applications to piping systems, pumps and nuclear reactors. 3 lecs. and one lab. Prereq: Math 4710.


4110-20-30 Introduction to Nuclear Reactor Theory (3, 3, 3) Nuclear structure; radioactive decay laws; neutron interaction; fission process, chain-reacting systems; diffusion equation including multigroup diffusion theory, neutron moderation, reactivity coefficients; perturbation theory. Prereq: Physics 3730 or consent of instructor.

4140 Thermonuclear Systems (3) Fusion reactions; properties of plasmas, plasma containment, plasma diagnostics; thermonuclear devices. Prereq: Physics 3730; Math 4550.

4210-20 Nuclear Engineering Laboratory (3, 3, 3) Radiation detection and counting instrumentation, counting statistics, half-life and decay schemes, gamma spectroscopy, cross-section measurements, analog computation, diffusion properties of neutrons, critical loading experiments, control rod calibration, statistical weight, shielding, xenon poisoning, prompt critical reactor behavior, fission density and adjoint flux. Prereq: 4110 (or registration therein), or equivalent.


4610-20 Reactor Power Systems (3, 3, 3) Nuclear structure, decay laws, neutron diffusion, time behavior of reactors, heat removal, analysis of reactor power plants; economic, safety, and environmental aspects of nuclear power. Prereq: Math 4610; non-nuclear engineering students only.

4710 Energy Transport (4) Development of differential and integral energy conservation equations; conduction, convection, and radiation heat transfer; application of nuclear reactor fuel elements and heat exchangers. Prereq: 3730.

4720 Reactor Thermal Design (4) Hydrodynamics and heat transfer in boiling systems; boiling crises; fuel element thermal design, steam generator design. Prereq: 4710.

4730 Nuclear Reactor Design (3) First order reactor design, integration with non-nuclear heat transfer and power conversion system, economic evaluation; optimization procedures, description of typical systems. Coreq: 4130.


4820 Reactor Kinetics and Controls (3) Derivation of kinetic equations; basic kinetics parameters; transient response with feedback; control and protective systems. Prereq: 4110.

4840 Nuclear Reactor Safety (3) Presentation of reactor safety concepts and criteria; credible accidents, fission product release and transport; containment systems; accident analysis; engineered safeguards. Prereq: 4120.

4930 Nuclear Fuel Management (3) Discussion of problems associated with processing of nuclear materials; fuel cycle analysis; burn-up calculation. Prereq: 4120.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5110-20-30 Transport Processes in Nuclear Engineering (3, 3, 3)

5210 System Dynamics (3)

5220 Reactor System Dynamics (3)

5230 Experimental Methods in Reactor Dynamics (3)

5240 Reactor Instrumentation (3)

5310-20-30 Nuclear Systems Reliability (3, 3, 3)

5310-20-30 Nuclear Systems Reliability (3, 3, 3)

5710-20-30 Nuclear Reactor Theory (3, 3, 3)

5740 Reactor Shielding (3)

5790 Monte Carlo Shield Design (3)

5840-50 Fast Breeder Reactors (3, 3)

5970 Special Topics in Nuclear Engineering (3)

5980 Nuclear Engineering Practice (3-12)

6000 Doctoral Research and Dissertation

6110-20-30 Selected Topics in Reactor Theory (3, 3, 3)

6140 Radiation Shielding (3)

6150 Reactor Dynamics (3)

6710 Two-Phase Flow and Heat Transfer (3)
College of Home Economics

Lura M. Odland, Dean
Grayce E. Goertz, Associate Dean
Virginia S. Anagnost, Assistant Dean

The College of Home Economics is an integral part of The University of Tennessee's academic program in its three major functions of teaching, research, and extended services. The college ranks among the top three colleges of home economics in the nation in enrollment and first in the number of master's and doctoral degrees granted. All undergraduate programs of the college are accredited by the American Home Economics Association. Much of the qualitative and quantitative growth of the college is due to its highly qualified faculty and staff who, being aware of the current community problems and needs, have made its programs relevant to the goals and aspirations of today's students.

Today's students are seeking professional positions in which they can better serve people—individuals, families, consumers—by helping them predict and solve problems arising from the increasingly rapid changes occurring in the society in which we live. The basis of the college's professional programs is to prepare young men and women to serve the needs of people in their many varied environments and different stages of life.

The philosophy of the college might best be stated as follows: home economics, while it does seek knowledge which describes and analyzes, is not content with only studying "what is," but also is concerned with promoting "what can and should be" in order to enhance the quality of life and well-being of people and societies.

The college's mission is twofold: its graduate programs are geared toward research producing alternative solutions to technical and social problems which are and will be encountered by the people who are to be served; its undergraduate programs prepare students to work with people in a professional capacity so that they may make use of what has been learned in serving as professional agents of change.

The University of Tennessee pioneered as one of the first institutions of higher education in the South to offer home economics and has continued to hold a position of leadership. The first class was taught in 1897. The faculty of the college numbers 60 full-time teaching and research staff. There are five departments with curricula leading to the Bachelor of Science degree: Child and Family Studies; Interior Design and Housing; Food Science, Nutrition, and Food Systems Administration; Home Economics Education; and Textiles and Clothing. The undergraduate program in Home Economics Education is offered in cooperation with the College of Education and the Home Economics Extension Education program is offered in cooperation with the Institute of Agriculture. Approximately 350 courses are offered in these departments. The graduate programs leading to the Master of Science degree were begun in the summer of 1925. Programs for the Doctor of Philosophy degree were initiated in 1960. The Doctor of Philosophy degree program in home economics now includes three options: Interdisciplinary, Food Science, Nutrition, Food Systems Administration may be taken as a concentration in the Food Science doctoral option.

Special Resources

Several special programs enhance the offerings of the college:

Selected students have the opportunity to study for one quarter at the Merrill-Palmer Institute for Human Development and Family Life in Detroit, Michigan or at the Child Development Center of the Center for Health Sciences in Memphis. Credits earned may be applied toward a Bachelor of Science degree in most curricula of the college.

Model research programs for infant care and preschool day care and nursery school provide home economics students the opportunity to train for careers as directors of, and teachers in, child care facilities. The need for appropriate child day care facilities staffed with well-trained, competent staff is recognized as one of the most urgent problems of today's urban society. Opportunities for home economics graduates with special interest in preschool programs are numerous and continue to increase. The Nursery School through Grade Three program offered jointly with the College of Education provides certification for teachers in early childhood education.

The U.S. Department of Agriculture Textiles and Clothing Research Laboratory is a part of the Southern Region Mid-Atlantic Area and was located at The University of Tennessee in 1967. Textiles and clothing researchers collaborate with the U.S.D.A. staff to conduct investigations that will (1) determine consumer needs for textiles and clothing and the adequacy of products available to meet these needs, (2) develop basic principles to guide consumers in selection and caring for textiles and clothing, and (3) solve other economic and technical problems pertaining to the field. Graduate students in this area may be trained at the laboratory.

International study tours in several areas of home economics are offered when a demand is indicated. The course "Home Economics 4910 International Study Tour" is offered for 6 credit hours at the undergraduate level. At the graduate level, "Home Economics 5100 International Studies" is available, depending on demand and resources, for up to 15 graduate credit hours. The length of the tours may vary from 6 to 8 weeks and the program is under the direction of a member of the faculty.

The Department of Food Science, Nutrition, and Food Systems Administration has a cooperative arrangement in which food service systems, such as those of the University, hospitals, schools, hotels, and restaurants
are available for laboratory experience for food systems administration students and in food industries for those in the food science curriculum. During the senior year students in the Coordinated Undergraduate Program in Dietetics receive clinical experience integrated with coursework in the food science curriculum. During the senior year students in the Coordinated Undergraduate Program in Dietetics will be eligible for membership in the American Dietetics Association (ADA) and application for ADA registration. The Nutrition program is affiliated with the Child Development Center, UT Center for Health Sciences, Memphis, for special study in mental retardation and developmental disorders. A liaison is maintained with the Knox County Health Department to provide concurrent field experience for students in the Community Nutrition Option. The Nutrition Science and Community Nutrition programs also provide requirements for membership in the American Dietetic Association.

All departments of the college conduct basic and applied research which may be supported in part by the college, by special grants and contracts, and by the Agricultural Experiment Station. The University of Tennessee Atomic Energy Commission program at Oak Ridge also provides opportunity for training and research.

Workshops on special topics of current importance are offered by the different departments and programs. These will be of special interest to those-desiring to work for advanced degrees. Announcements are sent upon request.

The Continuing Education Program provides advanced courses in all areas of home economics at centers across the state for updating and retraining as faculty resources permit. The program includes short courses, workshops, evening courses, and special videotape and telelecture courses. Individually planned graduate programs should be arranged with the appropriate department heads.

Facilities

The Jessie W. Harris Home Economics Building was dedicated in 1926. Since that time two wings have been added, one in 1937 and another in 1959. All departments have well-equipped laboratories for both graduate and undergraduate work, and a college audiovisual learning center and departmental reading rooms provide opportunity for independent study.

The Child Development Center is a separate building especially planned as a laboratory for teaching and research with preschool children. It houses an infant day care center, nursery school classrooms for two-, three-, four-, and five-year-old children, a preschool curriculum laboratory, and rooms for observation and research.

A separate Child Day Care Center housed in the UT Golf Range Apartments is staffed by the college and provides a laboratory for study as well as an adequate center for group care of children 2 to 6 years of age. The Family Life Center provides office and classroom space.

Food science, nutrition, and food systems administration facilities include well-equipped laboratories for basic food science, experimental food science, experimental nutrition (animal), and chemistry for graduate and undergraduate students. Laboratories include instruments for the examination of the chemical, physical, histological, and sensory properties of food, in addition to facilities for metabolic and survey studies of human nutrition.

Home economics education offices and laboratories are located in the Home Economics Building.

The Department of Interior Design and Housing facilities include provisions for study, regular classroom, laboratory and studio experiences. Laboratories for interior design and housing studies are especially equipped for this purpose.

Textile research facilities are available to undergraduate and graduate students and to research personnel interested in textile studies that benefit fiber producers, fabric and clothing manufacturers, and consumers. Laboratories are well-equipped for the physical and chemical analyses of fabrics, yarns, and fibers.

Certification in Vocational Home Economics Education

Certification to teach vocational home economics requires either a bachelor's or master's degree in home economics from an institution offering a curriculum for teacher training approved by the State Board for Vocational Education and the United States Office of Education. The University of Tennessee, Knoxville is approved for the training of teachers in home economics.

A description of the vocational home economics education curriculum leading to recommendation for certification will be furnished upon request. Graduate students interested in meeting certification requirements should consult the head of the Department of Home Economics Education. Transfer and graduate students who desire to qualify for vocational certification in home economics should state this when applying for admission so that their credits may be evaluated in terms of this goal.

Certification in Early Childhood Education

A joint program in Early Childhood Education—Nursery School through Grade Three was recently approved for the Department of Child and Family Studies (College of Home Economics) and the Department of Curriculum and Instruction (College of Education). In addition to preschool education, graduates are certified to teach kindergarten through third grade.

Educational Programs for Home Economics Extension Education

Students interested in careers as home economics extension agents have many opportunities for employment in service to urban and rural families. Special programs of study can be arranged for such students in cooperation with the Institute of Agriculture. The student selects a major in one of the curricula offered by the College of Home Economics. Elective courses may be selected by the student from those recommended by a joint advisory committee of the College of Home Economics, the College of Agriculture, and the home economics unit of the Agricultural Extension Service.

Summer field work experience, coordinated by the Department of Agricultural Extension Education, is available to selected students with a minimum 2.5 grade point average. The student must enroll in Agricultural Extension Education 3110 during the fall or spring quarter of the junior year prior to enrolling in Agricultural Extension Education 4110-20 Field Studies* in the summer quarter (see page 55 for course descriptions). Six hours credit is awarded for summer field studies during which the student works ten weeks as a Junior Assistant County Agent of the Tennessee Agricultural Extension Service.

Students interested in this program should contact their adviser and the administrative assistant in the Office of the Dean of the College of Home Economics for detailed information.

Undergraduate Study in Home Economics

Curricula in the following areas lead to the degree of Bachelor of Science in home economics:

Child and Family Studies (CFS)

Option 1—Early Childhood Development
Option 2—Home Development and Family Studies
Option 3—Nursery School-Grade 3

Crafts, Interior Design, and Housing (CICH)

Option 1—General Professional
Option 2—Professional Interior Design
Option 3—General Crafts

*Programs under revision.

Food Science, Nutrition, and Food Systems Administration (FSNFA)

Option 1—Food Science
Option 2—Nutrition Science
Option 3—Community Nutrition
Option 4—Coordinated Undergraduate Program in Dietetics (ADA)
Option 5—Tourism, Food and Lodging Administration

Textiles and Clothing (T & C)

Option 1—Merchandising
Option 2—Textile Technology

Vocational Home Economics Education (HEDC)

Consumer and Homemaking Education. Occupational Endorsement in one or more of the following areas:

1) Food Services
2) Child Care Guidance
3) Clothing Management, Production and Services

NOTE: Students are advised to consult the University's degree requirements as stated in the front section of this catalog as well as the requirements for their particular college or school.
For the degree of Bachelor of Science in Home Economics, students generally plan to complete the last 45 quarter hours of work (three quarters) at The University of Tennessee, Knoxville. Seventy-two hours must be earned in courses numbered above 3000 at The University of Tennessee, Knoxville. The prospective transfer student is advised to preplan the total college program before starting any college-level work. An accurate plan of work is necessary prior to transferring to the college is essential to maintaining a program of study with maximum utilization of credit and sequence of course work. All new freshman and transfer students whose majors require chemistry must enroll in the freshman chemistry course sequence until requirements are completed. It is recommended that transfer students complete the freshman chemistry requirements before transferring to the college. Students wishing to transfer 36 or more credit hours into the college must have an average of 2.0 for admission. Students with an average of less than 2.0 are not eligible for enrollment in junior or senior courses.

During the first quarter of residence, each student takes courses basic to all curricula and is assigned a faculty adviser for program planning. A normal student load per quarter is 15-16 hours. The maximum load is 19 credit hours per quarter (18 hours maximum for the Coordinated Undergraduate Program in Dietetics) unless otherwise approved by the dean.

When a student has completed one quarter in residence at The University of Tennessee, Knoxville (with at least a 2.0 average in course work), the student will be eligible to participate in self-registration. Students participating in the voluntary academic registration program bear full responsibility for meeting degree requirements in the proper sequence.

Students may choose to take, for elective credit only, a course (outside the specific requirements of the college and outside the major department) in which the student will receive a satisfactory or no credit grade. The purpose of the satisfactory/no credit (S/N) grading system is to encourage the student to explore subject matter areas outside of the requirements and other courses of the major by minimizing grades for the student's concern that performance may be somewhat less outstanding than that in preferred subject areas. These courses will count as hours for graduation but not for calculating the student's grade point average. A final grade of C or better will be recorded as satisfactory. No credit/credit grades are granted outside the requirements for the major by minimizing grades for the student's concern that performance may be somewhat less outstanding than that in preferred subject areas. These courses will count as hours for graduation but not for calculating the student's grade point average. A final grade of C or better will be recorded as satisfactory. No credit/credit grades are granted.

Proficiency examinations are offered for numerous courses of the college. Information on courses for which proficiency examinations are offered may be obtained from departments of the college.

Field training provides the opportunity for practical, preprofessional experience and constitutes an integral part of many of the college's programs. Students enrolled in certain College of Home Economics courses who are involved in field experiences are required to participate in the group liability insurance plan offered through the college. The annual cost for the student for this insurance coverage is $4.00 (subject to change).

The first digit in course numbers indicates the student group for whom the course is primarily offered: 1000 indicates courses for freshmen, 2000 for sophomores, 3000 for juniors, 4000 for seniors, 5000 and 6000 for graduate students.

Education 3810 should be elected in the sophomore year by those students majoring in the vocational home economics education curriculum. This course is a prerequisite for other required courses in education. Psychology 2500 is a prerequisite for Education 3810.

For majors in the food science, nutrition or textiles curricula, Nutrition 3310 should be taken preferably in the sophomore year and not later than the first quarter of the junior year.

The following four courses are fundamental to home economics and are required in all curricula:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
<th>Description</th>
</tr>
</thead>
</table>

**Professional Curriculum in Child and Family Studies**

The Department of Child and Family Studies is concerned with early childhood education, human development and family interaction throughout the life span, and with resource management and consumer studies. Departmental goals and objectives are designed to contribute to the interpersonal and professional competence of men and women students, and to provide preparation for careers in the helping professions related to children, adolescents, adults, and families, depending on the option the student selects.

The curriculum is appropriate for persons preparing for careers in child care centers and nursery schools, in public schools, with family services, child welfare agencies, extension, banks and consumer agencies. Other opportunities exist that require study beyond the bachelor's level (for example: administration, research and clinical services). All options provide necessary background for graduate study in child development, family relationships, early childhood education, and social work.

**OPTION 1. EARLY CHILDHOOD DEVELOPMENT**

This option is appropriate for persons interested in the following types of positions: day care teacher, nursery school teacher, worker in center for socially disadvantaged and/or handicapped children, entry level positions in social work, or preparation for graduate school.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
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<td>3</td>
<td>Home Economics 1510.</td>
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<td>Home Economics 1520.</td>
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</tr>
<tr>
<td>Nutrition</td>
<td>12</td>
<td>English 1010-20</td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
<td>Math 1546</td>
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<tr>
<td>Philosophy 1510 or 2510</td>
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<td></td>
</tr>
<tr>
<td>or 2520 or 2310 or</td>
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<td></td>
</tr>
<tr>
<td>Music 1210 or Art 1815 or 1825</td>
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<tr>
<td>Electives</td>
<td>6</td>
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<tr>
<td>Sophomore</td>
<td>4</td>
<td>Literature elective</td>
</tr>
<tr>
<td>Nutrition 1230</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Physical education elective</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Speech 1221 or 2231 or 2351</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Physical or biological sciences elective</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Social sciences</td>
<td>16</td>
<td>History or political science elective</td>
</tr>
<tr>
<td>Electives</td>
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**Junior**

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>CFS 3110-25</td>
<td>7</td>
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<tr>
<td>CFS 3120 or Library Science 3510</td>
<td>3</td>
</tr>
<tr>
<td>CFS 3210-20</td>
<td>6</td>
</tr>
<tr>
<td>CFS 3420 or 4330</td>
<td>3</td>
</tr>
<tr>
<td>CFS 3510 or 3515</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 2510</td>
<td>4</td>
</tr>
<tr>
<td>Economics 3333</td>
<td>3</td>
</tr>
<tr>
<td>Philosophy</td>
<td>4</td>
</tr>
<tr>
<td>Religious studies elective</td>
<td>4</td>
</tr>
<tr>
<td>Speech 3333</td>
<td>4</td>
</tr>
<tr>
<td>Physical Education 3560 or 3570</td>
<td>3-3</td>
</tr>
<tr>
<td>Public Health 3210</td>
<td>4</td>
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<tr>
<td>Electives</td>
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**Senior**

<table>
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<tr>
<td>CFS 4110</td>
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</tr>
<tr>
<td>CFS 4230</td>
<td>3</td>
</tr>
<tr>
<td>CFS 4240 or 4430 or 4610</td>
<td>3</td>
</tr>
<tr>
<td>CFS 4350</td>
<td>3</td>
</tr>
<tr>
<td>CFS 4610</td>
<td>3</td>
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<td>CFS 4620</td>
<td>3</td>
</tr>
<tr>
<td>CFS 4630</td>
<td>3</td>
</tr>
<tr>
<td>CFS 4710 or CIDH 4320</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 3510</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>15</td>
</tr>
</tbody>
</table>

**TOTAL: 192 hours**

**OPTION 2. HUMAN DEVELOPMENT AND FAMILY STUDIES**

This option is for undergraduate CFS majors who want a generalist background in individual and family studies. This option does not prepare for a career in preschool education. Students interested in Cooperative Extension Service, community agencies, general family counseling, social work, and graduate work would choose this undergraduate option.
Freshman

Home Economics 1510... 3
CFS 2110... 3
Home Economics 1520... 4
National science... 6
English 1010-20... 6
English 1031 or 1032 or 1033... 3
Mathematics or physics 1510 or...
2520 or 2310 or upper-level...
foreign language... 4
Music 1210 or Art 1815 or 1825...
Electives... 6

Sophomore

*CFS 2120... 3
Lecture elective... 3
*Nutrition 1230... 3
Home Economics 2510... 3
Physical education elective... 2
Speech 1221 or 2021 or 2351... 4
Biological or physical science elective... 4
*Social sciences... 16
History or political science elective... 4
Electives... 4

Junior

CFS 2410 or Sociology 3150... 3
CFS 3210... 3
CFS 3250... 3
CFS 3510... 3
CFS 3515... 3
CFS 3520... 3
Home Economics 3510... 4
Economics 2110... 3
History or political science elective... 4
Philosophy or religious studies elective... 4
Electives... 12-21

Senior

CFS 4230 or 4350... 3
CFS 4260... 3
CFS 4270 or 4610... 3
CFS 4430... 3
CFS 4810 or 4870... 3
Ed. Psych. 4800... 3
CFS 4630... 3
Sociology elective... 6-15
Electives... 4

TOTAL: 192 hours

*Twelve hours selected from the following: Biology 1210-20-30, Chemistry 1510-20-30, Physics 1410-20-30, Zoology 2461-71-81, Zoology 2620-30.
*Requirement may be satisfied by Mathematics 3000 or Psychology 3150 to be taken junior year.
*Requirement may be satisfied by Educational Psychology 4110 to be taken senior year.
*Requirement may be satisfied by Nutrition 3220 to be taken junior year.
*Selected from at least 2 of the following areas: Psychology 2500-2300, 2540, Sociology 1510-20, Anthropology 2510, 2520, 2530.

OPTION 3. NURSERY SCHOOL-GRATE THREE
This option is appropriate for persons interested in working with young children up to the age of eight in a variety of settings. A joint program with the Department of Curriculum and Instruction, this option provides certification for grades K-3.

Freshman

HE 1510... 4
HE 1520... 4
CFS 1500... 3
English 1010-20... 6
English 1031 or 1032 or 1033... 3
Speech 2510 or 2311... 4
Music 1210 or 1220 or Art 1815 or 1825... 4
*Biological science... 8
Math 2110-20-30... 9
*Philosophy or religious studies... 4

Sophomore

HE 2510... 3
CFS 3210... 3
*Health elective... 3
Art Ed 2100-10... 3
Music Ed 2110... 3
P.E. 3450... 3
*Physical science elective... 3
*Literature elective... 3
*Culture and society elective... 3
*History elective... 3
*Social science elective... 3
Economics 2110...

Junior

HE 3510... 3
CFS 4230 or 4320 or 4350... 3
CFS 4610... 3
*CFS 4110-11... 15
Ed. Psych. 4930 or 4950... 3
Ed. C & I 4450... 3
Ed. C & I 3350... 3
Ed. C & I 3720... 3
Ed. C & I 4040... 3
Ed. C & I 3010-20-30
(chose any two)... 6
Music Ed. 3110... 3
Public Health 3210... 3
P.E. 3660... 3
Library & Information Sci. 3810...

Senior

CFS 4120 or 4230 or 4350...
CFS 4610...
*CFS 4110-11...
Ed. Psych. 4930 or 4950...
Ed. C & I 4450...
Ed. C & I 4452...
Spec. Ed. 3333...
Electives...

TOTAL: 192 hours

*Courses should be chosen from: Biology 1210 or 1220 or 1230 or Botany 1110 or 1120 or Zoology 2520 or 2530.
*Courses should be chosen from: Philosophy 1510 or 1520 or 2310 or 2510, 2520 or Religious Studies 2610 or 2611 or 2820.
*Nutrition 1230 recommended.
*Courses should be chosen from: Chemistry 1110, 1510, 1610 (choose one), 1120, 1220, 1230 (choose one), or Geology 1510 or 1520 or 2210, or Astronomy 2110 or 2120, or Physics 1210 or 1220 or 1410 or 1420.
*Course should be any 2000-level English literature course.
*Course should be chosen from: Anthropology 2530 or 3410 or Human Services 2690, 3100, 3200 or 3300 or Psychology 2520, 2530 or 3616 and 3628, or Sociology 1510, 1520, 3410, or 3420.
*Course should be chosen from 1000-2000 level history courses.
*Course should be any course in areas of anthropology, economics, geography, human services, political science, psychology, sociology.
*All students who desire teacher certification are required to apply for admission to the Teacher Education Program in the College of Education.
*Application for student teaching (CFS 4110-4111, C & I 4860-4861) must be filed no later than January 1 of the academic year preceding the actual experience.

CRAFTS, INTERIOR DESIGN, AND HOUSING*

Acquisition and Exhibition
The department reserves the right of acquisition and exhibition of work completed in its studios under the guidance of the faculty.

OPTION 1. GENERAL PROFESSIONAL
This general curriculum is designed for students preparing for positions in business, educational and public service programs and provides background for advanced study in interior design and housing.

Freshman

Chemistry 1110-20-30 or 1510-20-30... 12
English 1010-20... 6
English 1033... 6
Food Science 1010... 6
Home Economics 1510... 4
Home Economics 2150... 4
*Humanities and social science electives... 12
Electives... 2
CIDH 1419...

Sophomore

Home Economics 2510... 4
Economics 2110-20... 6
English 2510 and 2530 or 2540...
Psychology 2500 and 2530 or 2540...
CIDH 2210... 4
Sociology 1510... 4
Speech 2311... 4
Zoology 2920-30... 9
Electives... 9

Junior

Food Science 3020... 3
CFS 3420... 3
Microbiology 2910... 3
Microbiology 2911... 3
Nutrition 3020... 3
CIDH 3110... 3
CIDH electives... 6
*Social science elective... 3
Textiles and Clothing 3420... 3
Home Economics 3510... 4
Electives... 13

Senior

CFS 3210 or 3220... 3
CFS 3510 or 3520... 3
CIDH 4320...
*Humanities and social science electives... 6
CIDH 4410... 4
Electives... 20

TOTAL: 198 hours

*Select from anthropology, art history, sociology, psychology, history.
*Select from anthropology, political science, history.
*Programs under revision.

OPTION 2. PROFESSIONAL INTERIOR DESIGN
The following curriculum provides for those students who are primarily interested in becoming professional interior designers.

Freshman

Home Economics 1510... 4
Home Economics 1520... 4
CIDH 1419... 2
Art 1115-25-35...
Art 1815-25...
Natural science electives... 12
English 1010-20... 6
English 1033... 3

Sophomore

English 2510... 4
CIDH 2115-16...
CIDH 3125...
CIDH 3130...
Speech 2311...
Economics 2110-20...
Home Economics 2510...
Electives... 8

Junior

Psychology 2500 and 2530 or 2540...
Marketing 3110...
Textiles and Clothing 3420...
CIDH 3260...
CIDH 3255-56...
Home Economics 3510...
Electives... 12

Number of hours shown is minimum.
### OPTION IN CRAFTS

The curriculum in crafts offers opportunity for specialization in the media of fiber, metal, wood, or clay. Graduate and undergraduate students in the area of crafts have a unique opportunity to participate in the summer program at the Pi Beta Phi Arrowmont School of Crafts, Gatlinburg, Tennessee; credit is granted through The University of Tennessee, Knoxville. Instructors at the school are nationally and internationally recognized designer-craftspersons who offer, in many instances, different approaches to those of the resident faculty; this further enriches the student's program of study. Craft courses are not offered on the Knoxville campus in the summer quarter. Therefore, students attending UT during the summer for crafts study are required to attend the Pi Beta Phi Arrowmont School of Crafts and to pay the additional registration, tuition, and laboratory materials fees required by that school.

### OPTION 3. GENERAL CRAFTS

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
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<tbody>
<tr>
<td>Freshman</td>
<td></td>
</tr>
<tr>
<td>Natural science sequence</td>
<td>12</td>
</tr>
<tr>
<td>English 1010-20</td>
<td>6</td>
</tr>
<tr>
<td>English 1033</td>
<td>3</td>
</tr>
<tr>
<td>CIDH 2210</td>
<td>4</td>
</tr>
<tr>
<td>Art 1115-25-35</td>
<td>12</td>
</tr>
<tr>
<td>Home Economics 1510</td>
<td>4</td>
</tr>
<tr>
<td>Home Economics 1530</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>4</td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
</tr>
<tr>
<td>Home Economics 2510</td>
<td>4</td>
</tr>
<tr>
<td>Psychology 2500</td>
<td>4</td>
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<tr>
<td>English 2510</td>
<td>4</td>
</tr>
<tr>
<td>CIDH 4140</td>
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<tr>
<td>CIDH 4310</td>
<td>3</td>
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<tr>
<td>CIDH craft courses</td>
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<tr>
<td>Humanities and/or</td>
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<tr>
<td>social science electives</td>
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<tr>
<td>Art history</td>
<td>9</td>
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<tr>
<td>TOTAL: 189 hours</td>
<td></td>
</tr>
</tbody>
</table>

1. Natural science electives (12-hour sequence) from one of the following sequences: Biology 1210-20-30, Chemistry 1510-20-30, Physics 1410-20-30, Botany 1110-20, 1140.
2. An area which directly reinforces the major chosen from ornamental horticulture and landscape design, history, textiles, art, architecture, business administration, child and family studies.

### OPTION 1. FOOD SCIENCE

The food science curriculum is concerned with relating the cultural and scientific aspects of food science to people and their environment. Emphasis is placed on the application of the social sciences, biology, chemistry, consumer reaction to food acceptability and marketing problems; application of the physical sciences is made in the study of food composition and properties and changes associated with processing, preparation, and storage. This curriculum prepares students for positions in food product development and evaluation in industry and government, work in communications media or for direct entrance into a master's degree program needed for college teaching and research. Information concerning modifications necessary to meet the academic requirements of the American Dietetic Association is available from the department.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
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<tbody>
<tr>
<td>Freshman</td>
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<td>Chemistry 1110-20-30 or</td>
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<td>1510-20-30</td>
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<td>Food Science 1010</td>
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<td>Home Economics 1510</td>
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<td>1840-50</td>
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<td>Psychology 2500</td>
<td>4</td>
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<tr>
<td>Electives</td>
<td>4</td>
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</table>

### OPTION 2. NUTRITION SCIENCE

This curriculum provides in-depth training in the basic biological sciences as well as nutrition. This option is designed for students who are interested in graduate study to become college teachers or researchers or who are interested in graduate study and/or a dietetic internship, to become a clinical nutrition specialist.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
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<tbody>
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<td>Sophomore</td>
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<td>English 2510 or 2520 or</td>
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<tr>
<td>2530 or 2540</td>
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<td>Home Economics 2510</td>
<td>4</td>
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<tr>
<td>Journalism 2210</td>
<td>3</td>
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<tr>
<td>Nutrition 3310-20-30-39</td>
<td>12</td>
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<tr>
<td>Physical education elective</td>
<td>2</td>
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<td>Zoology 2920-30</td>
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<tr>
<td>Electives</td>
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<td>Anthropology 2530</td>
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<td>Educational Psychology 3110</td>
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<td>Food Science 2510</td>
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<td>Food Systems Administration 3320</td>
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<td>Microbiology 2919</td>
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<td>Nutrition 3410</td>
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<td>Plant and Soil Science 3610</td>
<td>3</td>
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<td>Zoology 3500-60, 3920</td>
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<td>Electives</td>
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</table>
OPTION 3. COMMUNITY NUTRITION

This curriculum is designed for those students interested in community services or graduate work in public health nutrition.

Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Chemistry 1110-20-30 or 1510-20-30</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>English 1010-20</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>English 1033</td>
<td>3</td>
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<tr>
<td>Food Science 1010</td>
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<td>Home Economics 1510</td>
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<td>Horticulture 1520</td>
<td>3</td>
<td></td>
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<tr>
<td>Mathematics 1540</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Nutrition 1230</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Psychology 2500</td>
<td>4</td>
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<tr>
<td>Sociology 1510</td>
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Application and selection by a faculty committee required to enter sophomore year.

Sophomore

<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Economics 2110-20 or 30</td>
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</tr>
<tr>
<td>English 2510 or 2520 or 2530 or 2540</td>
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<tr>
<td>Home Economics 2510</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Journalism 2210</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Nutrition 3310-20-30-39</td>
<td>12</td>
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</tr>
<tr>
<td>Physical education activity elective</td>
<td>2</td>
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<td>Speech 2311</td>
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<td>Zoology 2920-30</td>
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<td>Electives</td>
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Junior

<table>
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<tr>
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<th>Credit</th>
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<tbody>
<tr>
<td>Anthropology 2530</td>
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</tr>
<tr>
<td>Educational Psychology 3110</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Food Science 2510</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Food Systems Administration 3110</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Home Economics 3510</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Microbiology 2910</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Microbiology 2919</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Nutrition 3415</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Plant and Soil Science 3610</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Political science elective</td>
<td>4</td>
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</tr>
<tr>
<td>Public Health 3330</td>
<td>3</td>
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</tr>
<tr>
<td>Electives</td>
<td>9</td>
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</table>

Senior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPS 3420 or 4210</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CPS 2260 or 4810</td>
<td>3</td>
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<tr>
<td>Food Science 3020</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Food Systems Administration 4130</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Library and Information Science 4750</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Nutrition 4010</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Nutrition 4030</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Nutrition 4031 or 4490</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Nutrition 4230</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Nutrition 4330</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>15</td>
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</tr>
</tbody>
</table>

TOTAL: 188 hours

OPTION 4. COORDINATED UNDERGRADUATE PROGRAM IN DIETETICS (ADA)

The Coordinated Undergraduate Program in Dietetics is a generalist program, training entry-level dietitians in administrative and clinical dietetics, and is accredited by the American Dietetic Association (ADA). The program incorporates the equivalent of a fifth year dietetic internship into a four-year academic curriculum. The curriculum includes a two-year preprofessional sequence that meets general education requirements and prerequisites for professional courses, and a professional phase in the junior and senior years. The junior year provides an introduction to dietetics, basic knowledge in food science, nutrition, and food systems administration, and research techniques. The senior or fourth year consists of advanced work in dietetics. During the professional phase, academic courses are coordinated with planned experiences in selected hospitals and community facilities. The assignment of students to each clinical site is made by the program director.

Admission and Progression Policies

A student may be admitted to the program provided all requirements or equivalents of the program up to that time, as well as University of Tennessee and College of Home Economics standards, have been satisfactorily met. Preprofessional courses may be taken at The University of Tennessee, Knoxville, or any accredited junior or senior college or community college. The program has been planned to permit transfer students to apply prior to the beginning of the junior year. Applications should be made to the program director by April 1.

Criteria for selection include (1) evidence that the student will successfully complete the two-year preprofessional phase, (2) an overall GPA of 2.2 or higher, (3) personal interview, and (4) recommendations from faculty of selected preprofessional courses. The number of qualified students accepted into the Coordinated Undergraduate Program in Dietetics is contingent on the number of clinical sites available. Criteria for admission must be maintained throughout the preprofessional phase. Exception to criteria may be made by petition to the program director. Criteria for progression in the professional phase junior and senior years will include (1) satisfactory completion of each required professional course as scheduled with a minimum grade of C, (2) periodic evaluation of competency level by academic and clinical faculty, (3) periodic evaluation of professional competency by peers, and (4) participation in voluntary professional activities. The maximum credit hours carried per quarter should not exceed 18 hours without special permission from the program director. Exceptions to the above may be made by petition to the program director.

Upon satisfactory completion of the program, students receive the Bachelor of Science Degree in Home Economics, and are eligible for membership in the American Dietetic Association and to apply for the registration examination to qualify as a Registered Dietitian (R.D.).

A student unable to enter or to complete the Coordinated Undergraduate Program in Dietetics (Option 4) may select Food Science (Option 1), Nutrition Science (Option 2), or Community Nutrition (Option 3) to fulfill the academic requirements for a dietetic internship or traineeship. Upon completion of the academic requirements and the dietetic internship or traineeship, students would join the membership in the American Dietetic Association and to apply for the registration examination to qualify as a Registered Dietitian (R.D.).

Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>Chemistry 1510-20-30</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>English 1010-20</td>
<td>6</td>
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</tr>
<tr>
<td>English 1033</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Food Science 1010</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Home Economics 1510</td>
<td>4</td>
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<tr>
<td>Horticulture 1520</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Mathematics 1540</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Nutrition 1230</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Psychology 2500</td>
<td>4</td>
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<tr>
<td>Sociology 1510</td>
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</tr>
<tr>
<td>Speech 2311 or Journalism 2210</td>
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</table>

Application and selection by a faculty committee required to enter sophomore year.

Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Home Economics 2510</td>
<td>4</td>
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<tr>
<td>Nutrition 3000, 3330-40</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>English 2510 or 2520 or 2530 or 2540</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Food Science 2510</td>
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<tr>
<td>Microbiology 2910</td>
<td>3</td>
<td></td>
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<tr>
<td>Microbiology 2919</td>
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<tr>
<td>Zoology 2920-30</td>
<td>8</td>
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</tr>
<tr>
<td>Economics 2110, 2130</td>
<td>6</td>
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</tbody>
</table>

Application and selection by a faculty committee required to enter sophomore year.

Junior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>Junior Accounting 3210</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Nutrition 3410-11, 3920, 4230-31</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>3920, 4150</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Home Economics 3510</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Psychology 4450 or Economics 3420</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>12</td>
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</tr>
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</table>

Senior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthropology 4250</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Food Systems Administration 4130</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4140, 4250</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Food Systems Administration 4410</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>4420, 4430</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Food Systems Administration 4421</td>
<td>6</td>
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</tr>
<tr>
<td>Nutrition 4240-41, 4030-31</td>
<td>11</td>
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<tr>
<td>Nutrition 4440</td>
<td>4</td>
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</tr>
<tr>
<td>Food Science 4000</td>
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</tr>
</tbody>
</table>

TOTAL: 190 hours

OPTION 5. TOURISM, FOOD, AND LODGING ADMINISTRATION

This professional curriculum is concerned with meeting the middle and upper-level management needs of the tourist, food and lodging industry of today. It provides a program for both men and women who will assist students in gaining breadth of knowledge, perspective, flexibility, and creativity to meet the changing environment of complex management problems in the industry.

This option offers two curricular plans, a regular four-year program (A) and a cooperative plan (B) with pre-planned and supervised work experience in the sophomore, junior, and senior years during which the student is employed by an approved facility in the tourist, food, or lodging industries. The cooperative plan will take four years plus 2 terms. Selection of Plan A or B must be made at the end of the freshman year.
Plan A

Freshman
- Natural science electives (12 hr. sequence) from one of the following areas: Biology 1210-20-30, Chemistry 1510-20-30, or Physics 1410-20-30. 9
- English 1010-20 and 1033. 8
- Math 1540. 8
- Food Sci. 1010. 3
- FSA 2910. 3
- Sociology 2110. 3
- Nutrition 1230. 3

Sophomore
- Statistics 2100. 3
- English 2510 or 2520 or 2530 or 2540. 3
- Math 1540. 3
- Economics 2130. 3
- Microbiology 2100-11. 3
- Accounting 2110-20. 3
- FSA 3220. 3
- Sociology 2110. 3
- Psychology 2800 or 2530. 3
- FSA 3110. 3
- Speech 2311 or 2351. 3

Junior
- Food Sci. 4000 or 4040 or 2510. 3
- FSA 4130, 4150, 4250. 3
- CIDN 3110. 3
- Economics 3420. 3
- Text. & Cl. 3330. 3
- Marketing 3110-20. 3
- Accounting 2130. 3
- Computer Science 1410. 3
- Electives. 14

Senior
- HE 3510. 4
- FSA 4260. 3
- Business Law 4110. 3
- FSA 4140. 3
- FSA 4270. 3
- FSA 4210. 3
- FSA 4310. 3
- Electives. 3

TOTAL: 190 hours

Professional Curriculum in Textiles and Clothing

Option 1. Merchandising

This curriculum is appropriate for students wishing to prepare for positions in merchandising of apparel and/or fabrics, fashion writing, and in public relations with pattern companies and manufacturers of textile products.

Plan B:
Cooperative Curriculum in Tourism, Food and Lodging Administration

First Year
- Natural science electives. 4
- English 1010. 3
- Math 1540. 3
- HE 1510. 3

Winter
- Natural science electives. 4
- English 1020. 3
- Math 1550. 3
- Economics 2130. 3
- Food Sci. 1010. 3

Spring
- Natural science electives. 4
- English 1033. 3
- Micro. 2910-11. 3
- FSA 2910. 3
- Economics 2130. 3

Second Year
- Fall: English 2510 or 2520 or 2530 or 2540. 3
- HE 1520. 3
- Statistics 2100. 3
- Sociology 1510. 3

Winter
- Nutrition 1230. 3
- HE 2510. 3
- Speech 2311 or 2351. 3
- Accounting 2110. 3
- Psychology 2500 or 2530. 3

Spring
- FSA 3110. 3
- Accounting 2120. 3
- Economics 3420. 3
- Text. & Cl. 3330. 3
- Food Sci. 4000 or 4040 or 2510. 3

Summer
- Work

Third Year
- Fall: Work
- FSA 3220. 3

Winter
- FSA 4130 (on tape). 3
- Marketing 3110-20. 3
- Accounting 2130. 3
- FSA 4250. 3
- Electives. 3

Spring
- FSA 4150. 3
- Computer Sci. 1410. 3
- Marketing 3120. 3
- Electives. 3

Summer
- Work

Fourth Year
- Fall
- Work

Winter
- FSA 4260. 3
- HE 3510. 3
- FSA 4140. 3
- Electives. 3

Spring
- Business Law 4110. 3
- FSA 4270. 3
- Electives. 3

Summer
- Work

Fifth Year
- Fall
- Work
- FSA 4210. 3

Winter
- CIDN 3110. 3
- FSA 4310. 3
- Electives. 3

*Natural science electives (12 hr. sequence) from one of the following areas: Biology 1210-20-30, Chemistry 1510-20-30, or Physics 1410-20-30.
*Food Science 2510 requires Chemistry 1530.

Freshman
- Hours Credit
- Chemistry 1510-20-30, or 1110-20-30. 12
- English 1510-20, 1033. 8
- Home Economics 1510. 4
- Psychology 2500. 4
- Home Economics 1520. 3
- Text. & Cl. 1165. 3
- Text. & Cl. 1165. 3
- Text. & Cl. 2110. 3
- Sociology 1510. 4
- Electives. 3

Sophomore
- Accounting 2110. 3
- Economics 2110-30. 3
- Literature elective. 3
- Home Economics 2510. 3
- Anthropology 2530. 3
- Text. and Cl. 3420, 3429. 3
- Zoology 2520-30 or biology elective. 8
- Text. & Cl. 3510. 3
- Humanities electives. 8
- Electives. 3

Junior
- Psychology 3120 or Sociology 3130. 4
- Crafts, Interior Design & Housing 3130. 3
- Speech 2311. 4
- Marketing 3110-20 and a marketing elective. 9
- Journalism 2210. 3
- Home Economics 3510. 3
- Text. & Cl. 4110. 3
- Text. & Cl. 4230. 3
- Text. & Cl. 4620. 3
- Text. & Cl. 4380. 3
- Text. & Cl. 4010. 3
- Electives. 11

Senior
- CFS 3420. 3
- CFS 4230. 3
- Choose 6 hours from: crafts, interior design, and housing; nutrition; child and family studies. 6
- Text. & Cl. 4630, 4640. 15
- Text. & Cl. 4120. 3
- Electives. 15

TOTAL: 191 hours

*Eight-hour sequence from foreign language or philosophy or history or art history or music.
*Spring and Fall quarters only.
*A minimum grade point average of 2.2 is required to enroll in these courses.

Option 2. Textile Technology

This curriculum is appropriate for persons wishing to prepare for positions as research technicians and for graduate study leading to college teaching and research in textiles.

Freshman
- Hours Credit
- Chemistry 1110-20-30 or 1510-20-30. 12
- English 1010-20, 1033. 9
- Home Economics 1510. 4
- Psychology 2500. 4
- Home Economics 1520. 3
- Text. & Cl. 1160. 3
- Text. & Cl. 1165. 3
- Electives. 8

Sophomore
- Chemistry 3211-19 or Nutrition 3310. 4
- English 2510 or 2520 or 2530 or 2540. (choose two). 8
- Home Economics 2510. 4
- Mathematics 1540-50-60 or 1840-50-60. 12
- Sociology 1510. 4
- Text. & Cl. 3420, 3429. 4
- Zoology 2520-30. 3
- Electives. 6

Junior
- Economics 2110, 2130. 6
- Humanities electives. 8
- Journalism 2210. 3
- Physics 2110-20 or 1210-20. 8
- Statistics 2100 or 3450. 3
- Home Economics 3510. 3
- Electives. 15
Senior
CFS 3930 .................................................. 3
CIDH 2430, 3130 ........................................... 6
Text & Clio. 3440, 3450, 3480, 5220 .............. 9
Electives .................................................... 12
Text & Clio. 4220 ........................................... 4
Text & Clio. 4010, 4120, 4140, 4210 .............. 12
Electives .................................................... 14
TOTAL: 191 hours

Or English 2560 or 2570 or 2580.
*A at least 30 hours must be upper division courses.
Eight-hour sequence from foreign language or
philosophy or history or art history or music.

Professional Curriculum in
Vocational Home Economics Education
The teacher education program in home economics planned in cooperation
with the College of Education prepares prospective teachers for vocational
certification at the secondary level. Preparation is for both the Consumer and
Homemaking program and the occupational program. The four-year
 course of study involves general education and professional courses including home
 economics subject matter. State certification requirements are met plus
 provision for capitalizing on one's area of interest.
Total requirements for admission to
teacher education, to student teaching and for
receiving certification are listed on page 105. The State Board for
Vocational Education and the United States Office of Education approve
programs for vocational education. Only students who have a major in the
vocational home economics education curriculum meet certification
requirements; students who have a major in other curricula in the College of Home
Economics do not meet certification requirements.
All freshman, sophomore, and junior
required courses must be completed
before a student engages in student
teaching. Home Economics Education
4240 should be scheduled within one of
the two quarters immediately preceding
the quarter in which student teaching is
scheduled.
In the undergraduate curriculum, endorsement in one or more of the
occupational areas is optional and in
addition to the basic Consumer and
Homemaking Education requirements.
This curriculum will prepare students for
graduate study in home economics
education; however, it is not a
requirement for graduate study in home
economics education.

Sophomore
Home Economics 1520 .................................... 4
Economics electives ...................................... 6
Electives ..................................................... 4
H. Ed. Educ. 2240 ........................................... 3
Humanities electives ..................................... 8
Literature elective ......................................... 4
Psychology 2310 ........................................... 4
Social science electives .................................. 6
Zoology 2920-30 ........................................... 8

Junior
CFS 3210, 3510 ............................................. 6
Ed. C & I 3100-30* ........................................ 6
Special Education 3333 .................................. 3
Psych. 3310 .................................................. 12
Electives ..................................................... 12
Food Science 3020 ....................................... 4
H. Ed. Educ. 3430 ......................................... 3
CFS 3420 or 4210 or 4630 .............................. 3
Nutrition 3050 ............................................. 3
CIDH 3110 ................................................... 3
Text & Clio. 3420 ......................................... 3

Senior
Electives ...................................................... 9
H. Ed. Educ. 4240 ......................................... 4
H. Ed. Educ. 4310, 4610 ................................. 15
CIDH 4320 ................................................... 3
CFS 4430* or 3516 ......................................... 3
CFS 4440 ..................................................... 4
Nutrition 4050 ............................................. 4
CFS 4410 ..................................................... 4
Text & Clio. 3440 ......................................... 3

TOTAL: 190 hours

*15-17 hours of electives can be used for additional endorsement in one or more of the following
occupational areas: food services; child care and
guidance; clothing management, production and
services. If occupational endorsement is not sought, 9
hours of electives are to be selected in additional home
economics subject matter.
See page 107 for humanities requirements.
*Choose courses in history, anthropology, geography,
political science, sociology, or Child and Family Studies
2110.
*Requires admission to Teacher Education Program.
*Recommended course.

Occupational Endorsement Areas

1. FOOD SERVICES ENDORSEMENT
Food Science 2510 ....................................... 3
Hours
Food Systems Administration 3110 ................... 5
Food Systems Administration 3320 ................. 2
H. Ed. Educ. 4509 ......................................... 4

2. CHILD CARE AND
GUIDANCE ENDORSEMENT
CFS 3110 or 3510 ......................................... 7
CFS 3120 or LJS 3510 ................................. 3
CFS 4240 or 4610 ........................................... 3
H. Ed. Educ. 4509 ......................................... 4

3. CLOTHING MANAGEMENT, PRODUCTION AND SERVICES ENDORSEMENT
Text & Clio. 3460 or 3470 or 4240 ... .3 or 4 hours
Text & Clio. 4110 or 3510* .............................. 3
Hours
Text & Clio. 4010 or 4120 ................................ 3
H. Ed. Educ. 4509 ......................................... 6

*Recommended course.

Graduate Study Programs in the College of Home Economics
Graduate study programs lead to
the degree of Master of Science with a major in
child and family studies; consumer studies
and housing; public policy; crafts, interior
design, and housing; food science; food systems administration;
home economics education; nutrition; and
textiles and clothing. Graduate study programs
lead to the degree of Doctor of Philosophy in
Home Economics with three options:
interdisciplinary, food science,
and nutrition. Food systems administration may be taken as a concentration in the
food science doctoral option. Graduate
programs provide advanced specialized
training as needed in each area for college
and university teaching, for leadership
positions in government and private
professional agencies and in the various
professions in business, for secondary
school and adult teaching, for research
and for extended services.
Information regarding graduate
assistantships, fellowships, and general
requirements for admission to graduate
study may be obtained from the
department head in the area of the
student's major interest or the dean of
the College of Home Economics for the
interdisciplinary doctoral option.
An application for admission and two
official transcripts should be submitted
directly to the Graduate School. In
addition, application is made to the
dean of the College of Home Economics. Those students desiring a major in
child and family studies, the interdisciplinary
doctoral option, or home economics
education are required to take the
Graduate Record Examination.
For a complete description of the
Graduate Program in the various areas of
home economics, see the Graduate
Catalog, including the list of available
major and minor areas.

Departments of Instruction
Child and Family Studies (245)

Professors:
J. L. Kulipers (Head), Ph.D. Michigan State; C.
Beasley (Emeritus), Ed.D. Columbia; M.L. Bishop (Emeritus), Ph.D. Cornell;
R. L. Hillinger, Ph.D. Iowa; E. L. Speer (Emeritus), M.A. Columbia.

Associate Professors:
R. E. Cromwell, Ph.D. Minnesota; J. L. Cunningham, Ph.D. Michigan State; D.B.
Eastwood, Ph.D. Tufts; V. M. Nordquist, Ph.D. Tennessee; R. M. Gipson, Ph.D. Ohio
State; P. White, Ed.D. Tennessee.

Assistant Professors:
M. F. Kalknowski, Ph.D. Massachusetts; B.C. Miller, Ph.D. Minnesota; H.M. Read, M.S.
Tennessee; P. B. Scott, Ph.D. Tennessee; L.E. Southworth, Ed.D. Tennessee; S.L.
Twardosz, Ph.D. Kansas.

Lecturer:
J. Marlowe, M.S. Tennessee.

1120 Management and its Contribution to Family Living (3) Decision-making process, relationships
among decisions; principles of organization for
implementing decisions; evaluation procedures;
factors affecting management process; application
of management principles to problems.

1500 Introduction to Early Education (3) Introduction
and overview of early childhood education;
conceptions of children, teachers and teaching.
Includes field observation.

2110 Human Socialization (3) Human development
with emphasis on the process from infancy
to adolescence through childhood, family, school,
and peer group settings. Recommended for non-
mainters only.

2120 Male-Female Relations (3) Examination of
issues and development of communication skills and
roles involved in relating to opposite sex. (Not
open to majors.)

2410 Human Sexuality (3) Dimensions of human
sexuality as examined through cultural, social,
and psychological influences.
3110 Program Planning (4) Philosophies of preschool education. Analysis of program and teacher-child interaction. Prereq: 3210 or equivalent.
3120 Aesthetic Experiences (3) Examination of subject matter areas—quantity and logic, art, music, literature, history. Prereq: 3110.
3125 Day Care Programming for Infants and Preschool Children (3) Program planning for children from early infancy through 6 years in day care environments. Prereq: 3210 or equivalent.
3210 Child Development I (3) Comprehensive view of the child 2 to 8 years of age. Analysis of interpersonal relationships among various aspects of development: physical, cognitive, emotional and social. Prereq: 2110 or Home Economics 1510 or 3 hrs psychology. 3 hrs. 1 hr observation per week.
3220 Child Development II (3) Growth and development of the child from 6 to 12 years of age with emphasis on influence of family and community. Special attention given to different social and cultural settings. Prereq: 2110, 4 hrs psychology or equivalent. 3 hrs. 1 hr observation per week.
3420 Family Economics (3) Management of family income and resources. Private and public measures to improve income position and reduce income insecurity. Prereq or coreq: Economics 2120.
3510 Intimacy: Marriage and Alternatives (3) Examination of primary relationships from perspectives of both developmental and relationship development. Emphasis is upon dating, marriage, and variant family forms.
3515 Family Development (3) Focuses on family from childhood/childrearing stage to stage of aging family in a developmental framework. Emphasis given to effects of family life cycle stage on marital interaction and parenting. Prereq: CFS 2110 or 3110 or 3220.
3520 The Family and the Adolescent (3) Problems of growth and development during teen years; role of parents and other adults in fostering adolescent development. Upper-division students only. Prereq: 2110 or 4 hrs psychology or 4 hrs sociology.
4000 Observational Methods in Child Development (3) Overview of methods of observing teacher and child behavior and development of individual skills in observational assessment. Prereq: Consent of the instructor.
4110 Student Teaching in Preschool Settings (6) Increasing responsibility for planning and guiding groups of young children under supervision of head teacher includes 2-hr weekly seminar. Prereq: 1500, 3110, 3120, 3210, coreq: 4111.
4111 Student Teaching of Preschool Children (3) Increasing responsibility for planning and guiding groups of young children under supervision of a head teacher includes 2-hr weekly seminar. Prereq: 1500, 3110, 3120, 3210, coreq: 4110.
4210 Family Finance (3) Analysis of alternative ways of meeting financial problems encountered during life cycle of family.
4220 Conserving Time and Energy in the Home (3) Application of management principles to home-making activities; evaluation of equipment, work centers and work procedures in terms of time and energy demands. Adaptations for the handicapped.
4230 Development in Infancy (3) Development during prenatal period and first fifteen months of life. Interaction between infant and his environment. Prereq: knowledge of child development and childrearing practices and prediction of later behavior. Prereq: 2110 and Zoology 2930 or equivalent.
4260 Adult Development and Aging (3) Adult life in our society. Adjustment to internal and environmental changes through middle and aged years. Prereq: 2110 or HE 1510 or equivalent background in adult development or consent of instructor.
4380 Advanced Child Development (3) Survey of selected theories relevant to child development with emphasis on research literature and research methodology. Prereq: 4 hrs psychology and 6 hrs child development or equivalent.
4420 Learning Experiences with Parents (3) Dynamics of parent-teacher interaction. Emphasis on a variety of techniques for developing communication and working relationships between parents and teachers through experiences in a variety of settings. Prereq: 3610 or 4110 or equivalent.
4430 Family Relationships (3) Interpersonal relationships among family members and societal roles. Prereq: 3510 or 3515.
4610 Child in the Community (3) Needs of children; community agencies meeting these needs; visits to agencies contributing to welfare of children. Prereq: 2110 or Home Economics 1510 or equivalent.
4620 Administration of Programs for Young Children (3) Planning for staffing, housing, feeding, scheduling, and financing for day care of infants and young children, nursery school programs, and specialized programs for deprived preschool children. Prereq: 3110 or 3130 or 4110.
4630 Field Work in Child, Family and Consumer Studies (3-15) Opportunity for student to work in preschools or community agencies; focus on children, families, and/or consumer concerns. Hrs. arranged. May be repeated. Maximum credit 15 hrs.
4710 Contemporary Developments (1-3) Student or staff initiated course for study of special topics pertinent to the field. Topics selected to be determined by students and instructor with departmental approval. Elective credit only. Prereq: Consent of instructor. May be repeated with departmental approval for credit up to 9 hrs.
4810 Africo-American Families (3) Historical background, contemporary family structure and relationships; emerging needs and programs. Prereq: 4 hrs in social sciences and upper-division standing. (Same as Black Studies 4610.)
4830 Consumers and the Market (3) Analysis of elements in marketplace which create problems for consumers. Special attention is given to consumer decision making, need for information and consumer protection. May be repeated. Maximum credit 9 hrs.
4978 Honors: Child, Family and Consumer Studies (3) Individual special problems for juniors and seniors showing special ability and interests. May be repeated. Maximum credit 9 hrs.
GRADUATE 5000 Thesis 5002 Non-Thesis Graduation Completion (3-15) 5060 Practicum (1-12) 5110 Field Work in Family Life (3) 5140 Consumption and Standards of Living (3) 5150 Assessment of Family Behavior (3) 5160 Management of Time and Energy in the Home (3) 5170 Consumer Economics (3) 5180 Family Financial Consultation (3) 5190 Standards in Consumer Protection (3) 5210 Theories of Child Development (3) 5220 Family Life Programs (3) 5310 Theory and Research on Human Sexuality (3) 5410 Advanced Family Relationships (3) 5420 Parents and Children (3) 5430 Families in Crisis (3)
5510 Survey of Research in Child and Family Studies (3)
5520 Survey of Research in Child and Family Studies (3)
5540 Preschool Curriculum Models (3)
5550 Supervision in Preschool Programs (3)
5610 Theories of Management in the Family Environment (3)
5620 Nursery School Administration (3)
5630 Seminar in Infant Development (3)
5640 Teaching Child and Family Studies (5)
5700 Current Programs and Trends in Child and Family Studies (1-3)
5800 Problems in Child, Family, and Consumer Studies (1-3)
5840 Family Planning Programs (3)
5900 Seminar in Child and Family Studies (1-3)
6110 Seminar in Child Development, Family Relationships and Consumer Studies (3)
6250 Advanced Topics (3)
6310 Individual and Family Development: Physiological Determinants (3)
6320 Individual and Family Development: Cognition (3)
6330 Individual and Family Development: Socialization (3)
6410 Theories of Family Interaction (3)
6450 Conceptual Frameworks for the Family (3)
6540 Seminar in Programs for Infants and Preschool Children (3)
6610-20 Applied Behavior Analysis in Natural Settings (6, 6)
6710 Elements of Consumer Choice (3)
6720 Consumer Protection (3)

Interior Design and Housing

Professors: R.G. Blakemore (Head), Ph.D. Florida State; L.J. Gazess (Emeritus), Ph.D. Purdue; M.G. Haig (Emeritus), M.A. Columbia.

Associate Professor: W. Moran, M.S. Wisconsin.
Assistant Professors: A.K. Farkas, Ph.D. Minnesota; K.L. Tepel, M.S. Massachusetts.

Lecturers: J.R. Burger, M.S. Tennessee; M.W. Hetrick, M.S. Tennessee.

Crafts, Interior Design, and Housing (269)

1410 Introduction to Crafts and Interior Design (3) Presence of art in immediate environment; design used in daily living by cultures different from ours; emphasis on awareness of design. 2 hrs and 1 lab.
1419 Crafts and Interior Design Studio (2) Introduction to grammar of design in studio situation with emphasis on design organization, color and general awareness of immediate environment. Prereq or coreq: Home Economics 1620. Required of students specializing in crafts and interior design.
2115 Fundamentals of Interior Design I (8) Introduction to basic drafting techniques, symbols and terminology used in interior design presentations.
2116 Fundamentals of Interior Design II (6) Residential space planning of micro-environments with special emphasis on prescriptive and objective techniques as a means of communication of design solutions. Opportunity for individual experimentation.

2210 Creative Design (4) Comparison and criticism of design; requirements for individuality within the limits of appropriateness; appreciation of basic art principles, and their application to combining original design experimenting with elements of space, texture, color, and different methods for creating design. Prereq: 3420 or equivalent. 1 hr and 2 labs.

2430 Equipment in the Home (3) Principles underlying operation and construction of household equipment; processes and supplies involved in using and caring for equipment; recent developments; estimation of costs; simple maintenance. 1 hr and 2 labs.

3110 Beginning Interior Design (3) Individual and design factors influencing selection, arrangement and combination of furnishings to derive the greatest satisfaction from homes and places of work. Prereq: 1410 or equivalent. 1 hr and 2 labs.

3125 Historic Interiors (5) Survey of the history of interior design and decorative arts of various cultures. Emphasis on stylistic analysis and relation of design to social and political factors. Prereq: 1410 or equivalent. 1 hr and 2 labs.

3130 Color (3) Experimentation in color systems and their significance to the home economist. Effective use of color sources in display, costume, and interior design for personality expression. 1 hr and 2 labs.

3255 Residential Interiors I (6) Design of single family residential structure based on analysis of occupant activities and environmental needs; inclusion of production of detailed construction drawings and specification of interior furnishings and finishing materials. Prereq: 2116 or consent of instructor.

3265 Residential Interiors II (6) Studio problems dealing with residential interiors other than single family detached dwelling; includes high-rise apartment, condominium; hotel, dormitory, remodeling existing structures, etc. Emphasis on working with individual's and/or family's specific needs and budget. Prereq: 3255 or consent of instructor.

3280 Professional Procedures (3) Preparation of interior design majors for in-field training. Emphasis on business practices and procedures as related to interior design. Prereq: Junior standing, interior design majors, and consent of department.

3270 Design (4) Design as it relates to crafts. Emphasis upon sources, development and application of design to major crafts. Design procedures, tools, and materials utilized in developing design resources for crafts. Prereq: 1419, 2210.

3310 Metal Design I (4) Experimenting with metals and techniques, stressing relationship of design to function and the use and use of tools. Prereq: 1410 or equivalent. 1 hr and 2 labs.

3320 Metal Design II (4) Principles of metal design; possibilities and limitations of materials, techniques. Methods of fabrication and design to process; imaginative use of art elements in metal design. 1 hr and 2 labs.

3330 Metal Design III (4) Advanced experiences in metalworking, emphasizing relationship of design to processing and selection of art elements in metal design. Prereq: 3320 or equivalent. 1 hr and 2 labs.

3410 Weaving I (4) Creative design in elementary weaver's study of loom, basic weaves and threads. Interpreting and creating drafts; designing warps for various materials; assembling a loom; threading and tie-up of a loom; methods of finishing. Study of weaving of past and present. Prereq: 1410 or equivalent. 1 hr and 2 labs.

3420 Weaving II (4) Same as 3410 except designing, techniques, materials are explored in rug weaving. 1 hr and 2 labs.

3430 Weaving III (4) Advanced weaving techniques with exploration of pattern, color and texture using various warp and filling structures. Covers history, weaving and past and present. Prereq: 3410 or 3420 or equivalent. 1 hr and 2 labs.

3440 Demonstration Techniques in Household Equipment (4) Integration of household equipment demonstrations emphasizing performance, maintenance and cost; developing and using visual aids. Prereq: Speech 2511. 1 hr and 2 labs.

3510 Textile Design (4) Fundamental principles of textile design; use of color, line, value, and texture in design of materials. Emphasis on silkscreen and blockprint methods. Prereq: 1410 or equivalent.

3520 Textile Design (4) Study of resist processes in textile design, use of indigo dye, batik, and resist methods are emphasized. Works of contemporary designers in the field are discussed, as well as examples from the past. Prereq: 1410 or equivalent.

3530 Fabric Structures (4) Design and construction of fabric structures through use of non-weaving processes: looping, interlooping, coiling, inter-knotting, interlinking, interfacing, and twining, in-vestigation of tools, materials and non-weaving processes and need for development. 1 hr and 2 labs.

3610 Wood Design (4) Basic skills and appreciation for design of interior and exterior wood, and the making of small household objects and toys. Prereq: 1410 or equivalent. 1 hr and 2 labs.

3620 Wood Design (4) Continuation of 3610. 1 hr and 2 labs.

3710 Enameling I (4) Exploring possibilities and limitations of vitreous enamels. Designing and creating enameled metalwork and jewelry using a variety of materials and techniques. Contemporary and past enameling. Prereq: 1410 or equivalent. 1 hr and 2 labs.

3720 Enameling II (4) Advanced techniques; exploration of design, color and texture. Further study of art of enamelist, past and present. Prereq: 3710 or equivalent. 1 hr and 2 labs.

4110 Home Wiring and Lighting Requirements (3) Service of electricity in modern homes; evaluation of lighting and wiring plans in terms of family desires and need for design in lighting. 1 hr and 2 labs.

4130 Contemporary Design (3) Furnishings and interiors; economics, technology, and sociological influences on development of design; changing living conditions, relation of architecture and furnishings. Significant design and design process in current work.

4140 Exhibition Design (4) Display of craft and interior design problems in relation to materials, props, and special exhibition area. Emphasis on knowledge, application of design principles as they relate to promotion, design construction, display and evaluation for two and three dimensional display. Annual student craft and interior design exhibit culminates quarter. Prereq: 1410 or equivalent.

4155 Interior Space Planning II (6) Analysis, planning and design of office environment; includes contract specifications. Prereq: 3256 or equivalent.

4165 Interior Space Planning II (6) Studio problems involving large scale non-residential interior spaces such as restaurants, transportation facilities, stores, institutions, etc. Prereq: 4155 or consent of instructor.

4260 Professional Practice (15) Supervised field experience in establishments engaged in practice of interior design. Prereq: Junior standing, interior design majors, 3260, and consent of department.

4300 Apprenticeship/Field Experience (1-15) Supervised field or apprenticeship experience for craft majors. Includes field work with a professional organization, program or designer/craftsperson; subject to departmental approval. Prereq: Senior standing and consent of faculty.

4310 Crafts in America (3) Craft movement; factors that contribute to growth and development. Economic, social, educational and ethical therapeutic values of crafts. Place of crafts-person in society as producer, teacher, designer for individual use.

4320 Family Housing Problems (3) Housing requirements of families. Reading and judging house plans; effective use of space; maintenance problems; household organization; site selection and neighborhood development; financing procedures. Prereq: 6 hrs from Economics 2110-20-30.

4330 Care and Repair of Household Equipment (4) Care and repair of equipment to go with food service; in relation to operation and service cost; understanding of common repair problems. Prereq: 2430. 1 hr and 2 labs.

4410 Craft Media (4) Possibilities and limitations of variety of craft media; understanding educational and social values of craft work. Designing and contemporary ceramics art, using inexpensive materials and tools. 3 labs.

4420 Leather Design (4) Relationship of design to function, techniques and materials. Creating leather design. Prereq: 1410 or equivalent. 1 hr and 2 labs.

4430 Plastics (4) Possibilities and limitations of various plastics; methods of fabrication; relation of design to function, processes, types of material and use of tools. Prereq: 1410 or equivalent. 1 hr and 2 labs.

4510 Ceramics I (4) Possibilities and limitations of clay; techniques and use of tools. Designing and making pottery forms using coil, slab and techniques; decorating with slip, underglaze, sgrafito, incising and embossing; preparation of simple glazes; setting and firing kilns. Prereq: 1410 or equivalent. 1 hr and 2 labs.

4520 Ceramics II (4) Further study in designing, building, decorating, preparing glazes and firing. Role of the potter, past and present. Prereq: 4510 or equivalent. 1 hr and 2 labs.

4530 Ceramics III (4) Advanced design in relation to function, materials, tools and techniques. Further study of history of pottery and contributions of modern art, architecture and interior design. 1 hr and 2 labs.

4610 Studio Problems in Interior Design (3) Problems for seniors with special ability and interest in interior design. May be repeated to a maximum of 9 hrs. Prereq: Senior standing and consent of department.

4620 Studio Problems in Leather Design (4) Problems for juniors and seniors with special ability and interest in leather design. May be repeated to a maximum of 12 hrs. Prereq: 4 hrs of leather design or consent of department.

4630 Studio Problems in Metal Design (4) Problems for juniors and seniors with special ability and interest in metal design. May be repeated to a maximum of 12 hrs. Prereq: 12 hrs of metal design or equivalent and consent of department.

4640 Studio Problems in Weaving (4) Problems for juniors and seniors with special ability and interest in weaving. May be repeated to a maximum of 12 hrs. Prereq: 12 hrs of weaving or equivalent and consent of department.

4650 Studio Problems in Textile Design (4) Problems for juniors and seniors with special ability and interest in textile design. May be repeated to a maximum of 12 hrs. Prereq: 8 hrs of textile design or equivalent and consent of department.

4655 Studio Problems in Fabric Structures (4) Advanced problems in fabric structures for juniors and seniors with special ability and interest in fabric structures. Emphasis on in-depth research and creative problem solving in one or several areas of fabric structures. May be repeated. Maximum credit 12 hrs. Prereq: 12 hrs of fabric structures (or equivalent) and consent of department head.
4680 Studio Problems in Wood Design (4) 
Problems for juniors and seniors with special ability and interest in wood design. May be repeated to a maximum of 12 hrs. Prereq.: 8 hrs of wood design or equivalent and consent of department.

4670 Studio Problems in Enameling (4) 
Problems for juniors and seniors with special ability and interest in enameling. May be repeated to a maximum of 12 hrs. Prereq.: 4 hrs of enameling or equivalent and consent of department.

4680 Studio Problems in Plastics (4) 
Problems for juniors and seniors with special ability and interest in plastics. May be repeated to a maximum of 12 hrs. Prereq.: 8 hrs of plastics or equivalent and consent of department.

4680 Studio Problems in Ceramics (4) 
Problems for juniors and seniors with special ability and interest in ceramics. May be repeated to a maximum of 12 hrs. Prereq.: 8 hrs of ceramics or equivalent and consent of department.

4710 Contemporary Developments (1-4) 
Student or staff initiated course for study of special topics pertinent to the field; topics selected to be determined by students and instructor with departmental approval. Elective credit only. Prereq.: Consent of instructor.

4968 Honors: Crafts (1-4) 
Problems for juniors and seniors with special ability and interest in crafts. Hours arranged. May be repeated. Maximum credit 12 hrs. Prereq.: Consent of department head.

4978 Honors: Interior Design (1-3) 
Problems for juniors and seniors with special ability and interest in interior design. Hours arranged. May be repeated. Maximum credit 9 hrs. Prereq.: Consent of department head.

4988 Honors: Housing (1-3) 
Problems for juniors and seniors with special ability in housing. Hours arranged. May be repeated. Maximum credit 9 hrs. Prereq.: Consent of department head.

4998 Honors: Equipment (1-3) 
Problems for juniors and seniors with ability in equipment. Hours arranged. May be repeated. Maximum credit 9 hrs. Prereq.: Consent of department head.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5040 Seminar in Design (3)

5050 Advanced Design Studio (4)

5060 Practicum (1-12)

5120 Historic Interior Design (3)

5210 Furniture Appreciation (3)

5310 Interior Design (3)

5330 Craft Design (3)

5341-51-61 Metal Design I, II, III (4, 4, 4)

5342-52-62 Weaving I, II, III (4, 4, 4)

5343-53-63 Textile Design I, II, III (4, 4, 4)

5344-54-64 Wood Design I, II, III (4, 4, 4)

5345-55-65 Enameling I, II, III (4, 4, 4)

5346-56-66 Plastics I, II, III (4, 4, 4)

5347-57-67 Ceramics I, II, III (4, 4, 4)

5350-60-70 Fabric Structures I, II, III (4, 4, 4)

5368 Ceramics-Glaze Calculation (4)

5369 Ceramics-Kiln Construction (4)

5410 Advanced Problems (3)

5510 Environmental Factors in Interior Design (3)

5520 Environmental Factors in Interior Design (3)

5530 Environmental Factors in Interior Design (3)

5610 Furniture Design (3)

5613 Housing Management (3)

5614 Housing Regulations and Controls (3)

5615 Housing Programs and Policies (3)

5620 Experimental Methods in Household Equipment (3)

5630 Environmental Requirements for Family Work Centers (3)

5810 Crafts (1-4)

5820 Interior Design (1-3)

5830 Problems in Housing (1-3)

5910-20-30 Seminar (1-4, 1-4, 1-4)

6110 Contemporary Housing Issues and Problems (3)

6120 Advanced Topics in Housing Research (3)

6210 Environmental Design Analysis (3)

6320 Role of Crafts in Society (3)

6410 Conceptual Development in Craft Design (3)

6420 Perspectives in Crafts and Interior Design (3)

The following periodically are offered only at the Pi Beta Phi Arrowmont School of Crafts, Gatlinburg, Tennessee:

2211 Creative Design (1-4) 
Content same as 2210. May be repeated for credit.

3311 Metal Design (1-4) 
Content same as 3310. May be repeated for credit.

3321 Metal Design (1-4) 
Content same as 3320. May be repeated for credit.

3331 Metal Design (1-4) 
Content same as 3330. May be repeated for credit.

3411 Weaving (1-4) 
Content same as 3410. May be repeated for credit.

3421 Weaving (1-4) 
Content same as 3420. May be repeated for credit.

3431 Weaving (1-4) 
Content same as 3430. May be repeated for credit.

3511 Textile Design (1-4) 
Content same as 3510. May be repeated for credit.

3521 Textile Design (1-4) 
Content same as 3520. May be repeated for credit.

3611 Wood Design (1-4) 
Content same as 3610. May be repeated for credit.

3621 Wood Design (1-4) 
Content same as 3620. May be repeated for credit.

3711 Enameling (1-4) 
Content same as 3710. May be repeated for credit.

3721 Enameling (1-4) 
Content same as 3720. May be repeated for credit.

4311 Crafts in America (1-4) 
Content same as 4310. May be repeated for credit.

4411 Craft Media (1-4) 
Content same as 4410. May be repeated for credit.

4421 Leather Design (1-4) 
Content same as 4420. May be repeated for credit.

4431 Plastics (1-4) 
Content same as 4430. May be repeated for credit.

4511-21-31 Ceramics (1-4, 1-4, 1-4) 
Content same as 4510-20-30. May be repeated for credit.

4621 Studio Problems in Leather Design (1-4) 
Content same as 4620. May be repeated for credit.

4631 Studio Problems in Metal Design (1-4) 
Content same as 4630. May be repeated for credit.

4641 Studio Problems in Weaving (1-4) 
Content same as 4640. May be repeated for credit.

4651 Studio Problems in Textile Design (1-4) 
Content same as 4650. May be repeated for credit.

4661 Studio Problems in Wood Design (1-4) 
Content same as 4660. May be repeated for credit.

4671 Studio Problems in Enameling (1-4) 
Content same as 4670. May be repeated for credit.

4681 Studio Problems in Plastics (1-4) 
Content same as 4680. May be repeated for credit.

4691 Studio Problems in Ceramics (1-4) 
Content same as 4690. May be repeated for credit.

5331 Craft Design (1-4)

5411 Advanced Problems (1-4)

5441-51-61 Metal Design (1-4, 1-4, 1-4)

5442-52-62 Weaving (1-4, 1-4, 1-4)

5443-53-63 Textile Design (1-4, 1-4, 1-4)

5444-54-64 Wood Design (1-4, 1-4, 1-4)

5445-55-65 Enameling (1-4, 1-4, 1-4)

5446-56-66 Plastics (1-4, 1-4, 1-4)

5447-57-67 Ceramics (1-4, 1-4, 1-4)

5811-21-31 Special Problems in Related Art, Crafts and Interior Design (1-4, 1-4, 1-4)

5911-21-31 Seminar in Related Art, Crafts, Interior Design (1-4, 1-4, 1-4)

Foods Science, Nutrition, and Food Systems Administration

Professors: R. E. Beauchene, Ph.D., Kansas State; M. R. Buckley (Emeritus), M.A., Columbia; A. M. Campbell, Ph.D., Cornell; G. E. Goertz, Ph.D., Kansas State; E. B. Green (Emeritus), M. S. Columbia; M. J. Hitchcock, Ph. D. Wisconsin; F. L. Macleod (Emeritus), Ph.D. Columbia; L. M. O'donnell (Dean), Ph.D. Wisconsin, D. S. Rhode Island; J. R. Savage, Ph.D. Wisconsin; J. T. Smith, Ph.D. Missouri; J. A. Smith*, Ph.D. Tennessee.

Associate Professors: B. L. Beach, Ph.D. Wisconsin; L. A. Ercklie, Ph.D. Tennessee; D. W. Hubbard, Ph.D. Pennsylvania; D. E. Lyon, M.S. Cornell; M. P. Penfield, Ph.D. Pennsylvania; M. N. Perry, Ph.D. Pennsylvania; M. T. Taylor, M. S. (Mergia).


Lecturer: W. L. Dodson, M.S. Tennessee.

*Memphis

Food Science (386)

1010 Food Principles (3) Principles of food selection, preparation and service. 2 hrs and 1 lab.

2000 Cultural and Scientific Aspects of Foods and Nutrition (2) Cultural and scientific aspects of foods and nutrition as applied to the individual and community. Must be taken concurrently with Nutrition 2000. Prereq.: 12 hrs of natural science.

2510 Nature of Food (3) Classification on basis of composition, type of systems, structure, and consistency, source, food components and their interrelationships. Prereq.: 1010, Chemistry 1530 or equivalent, 2 hrs and 1 lab.
3020 Food and the Consumer (3) Economic considerations in food management, including food legislation, quality, consumer acceptability, and convenience. Prereq: 3 hrs economics. 2 hrs and 1 lab.

3021 Clinical Experience in Dietetics (1) Planned experiences for application of economic principles of food selection and consumer acceptability in selected community facilities. Coreq: 3020. Open only to students in the Coordinated Undergraduate Program in Dietetics.

3510 Nature of Food II (3) Food composition in relation to response of foods to heat, microwave, enzymatic, and chemical treatment. Prereq: 2510, Nutrition 3310 or Nutrition 3000. 2 hrs and 1 lab.

4000 Origin of Food and Foodways (3) Food origin and development, and growth and changes in foodways. Prereq: 3 hrs social science or humanities.

4010 Introductory Experimental Food Science (3) Physical and sensory evaluation in experimentation with fats, high protein foods, and batter and dough systems. Prereq: 3510. 2 hrs and 1 lab.

4020 Experimental Food Science (3) Individual experimentation and its relation to research literature. Prereq: 4010, Nutrition 3320 recommended. 1 hr and 2 labs.

4040 Food in Contemporary Society (3) Consumer's options, responsibility and potential influence with respect to food supply.

4100 Food Preservation (3) Application of basic principles and research findings to food preservation. Prereq: 1010. 4 hrs of microbiology and Nutrition 3310 or equivalent recommended. 2 hrs and one lab.

4530 Field Experience (3-15) Planned educational experience in selected food industry laboratories. Prereq: Consent of instructor. Hrs and credit arranged.

4710 Contemporary Developments (1-3) Student or staff initiated course for study of special topic(s) pertinent to the field. Topics selected to be determined by students and instructor with departmental approval. Elective credit only. Prereq: Consent of instructor. May be repeated with departmental approval for credit up to 9 hrs.

4800 Current Topics (1-3) Assigned reading and group discussion of research literature. Hrs and credit arranged. Prereq: 4010, or consent of instructor.

4800 Seminar (1-3) Individual review, organization and reporting of literature on selected topics. May be repeated for credit. Prereq: 4010, or consent of instructor. Hrs and credit arranged.

4878 Honors: Food Science (1-3) Special problems for juniors and seniors showing special ability and interest in food science. May be repeated for credit. Hrs and credit arranged.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5140 Foods and Nutrition: Physicochemical Principles (3)

5510 Food Texture (3)

5520 Food Sensory Testing Methods (3)

5530 Advanced Experimental Food Science (3)

5550 Food Behavior of the Individual (3)

5560 Foodways in the United States (3)

5610-20 Advanced Food Science (3, 3)

5630 Carbohydrates and Fats in Relation to Food Science (3)

5640 Proteins in Relation to Food Science (3)

5700 Current Programs and Trends in Food Science (1-3)

5800 Problems in Food Science (1-3)

5850 Field Experience (3-9)

5900 Seminar in Food Science (1-3)

6000 Doctoral Research and Dissertation

6110 Advanced Topics in Food Science (3)

6210 Food Dispensers (3)

6310-20 Structure of Food Plants and Animal Tissue (3, 3)

6510-20 Food and Socio-cultural Change (3, 3)

6900 Seminar (1-3)

Nutrition (728)

1230 Elementary Nutrition (3) Principles and applications to everyday living.

2000 Cultural and Scientific Aspects of Foods and Nutrition (3) Cultural and scientific aspects of foods and nutrition as applied to the individual and the community. Must be taken concurrently with Food Science 2000. Prereq: 12 hrs of natural science.

2710 Family Health Promotion (4) Management of family health throughout the life cycle with emphasis on family health status, health promotion and maintenance, health care delivery system, and prevention of disease (Nursing 2710). 3000 Nutrition Science (3) Basic nutrients as chemical entities. Prereq: Chemistry 1510-20-30 or equivalent.

3020 Nutrition (3) Fundamentals of nutrition which pertain to man. Not open to graduate students or undergraduates in nutrition or food science. Prereq: Chemistry 1510-20-30 or equivalent; Zoology 2920 or equivalent.

3050 Basic Nutrition (3) Relationship of basic nutrition to human well being. Prereq: Chemistry 1510-20-30 or equivalent and Zoology 2920 or equivalent.

3310 Organic Chemistry (4) Emphasis on subjects leading to 3320-30, Textiles and Clothing 4220. Prereq: General chemistry. 3 hrs and 1 lab. Not for graduate credit to departmental majors.

3320 Food Analysis (4) Elementary quantitative analysis; typical food analyses. Prereq: 3310 or equivalent. 3 hrs and 1 lab. Not for graduate credit to departmental majors.

3330 Physiological Chemistry (3) Metabolism of carbohydrates, lipids, and proteins. Role of vitamins and minerals. Prereq: Not for graduate credit for food science, departmental, and food systems administration majors.

3339 Physiological Chemistry Laboratory (1) Prereq: 3320; coreq: 3330, 1 lab. Not for graduate credit to departmental majors.

3340 Clinical Analyses (2) Laboratory and lecture. Principles, application and interpretation of chemical analyses of physiological materials. Prereq: 3000 or equivalent; coreq: 3330.

3410 Science of Nutrition (6) Basic principles of nutrition; significance of recommended dietary allowances and application. Prereq: 3330-30; Zoology 2920-30; Food Science 2510; 4 hrs and 1 lab.

3411 Clinical Experience in Dietetics (1) Planned experiences for application of principles of normal nutrition in selected health care and community facilities. Coreq: 3410. Open only to students in the Coordinated Undergraduate Program in Dietetics.

3610 Nutrition and the Environment (3) External conditions and influences affecting human nutrition, such as drugs, both social and therapeutic; alterations in air, soil and water; chemical additives.

3710 Individual and Family Health Problems (4) Influence of long-term and socio-cultural illnesses on individual and family living throughout the life cycle. (Same as Nursing 3710.)

3920 Survey of Dietetics II (1) Introduction to dietetics and to careers in dietetics; role of dietitian in health delivery systems. Coreq: Junior standing and Food Systems Administration 3920.

4010 Reproductive and Developmental Nutrition (3) Nutritional requirements for expectant mothers, infants, and preschool children. Prereq: 6 hrs of nutrition. 2 hrs and 1 lab.

4020 Nutrition for Children, Adolescents and Adults (3) Application of basic principles and research findings to good nutrition for children, adolescents and adults. Prereq: 6 hrs of nutrition. 2 hrs and 1 lab.

4030 Community Nutrition (3) Nutrition problems and services in the community; supervised field experiences are integral part of course. Prereq: 6 hrs of nutrition.

4031 Clinical Experience in Dietetics (3) Supervised field experience in the community. Prereq: 4231; coreq: 4530.

4050 Nutrition throughout the Life Cycle (4) Application of nutrition principles throughout the life cycle with emphasis on communication of nutrition information. Prereq: 3050 or consent of instructor.

4110 Introduction to Nutrition Research (3) Discussion of principles and laboratory experience. Prereq: 6 hrs of nutrition. 2 hrs and 1 lab.

4230 Nutrition in Disease (4) Nutrition problems in diseases influenced by diet. Prereq: 3410. 2 hrs and 1 lab.

4231 Clinical Experience in Dietetics (1) Planned clinical experiences applying principles of nutrition in disease. Coreq: 4230.

4240 Nutrition in Disease II (3) Interdisciplinary lectures and discussions on the metabolic processes of normal and diseased organs and/or tissues and the dietary or behavior modifications required. Prereq: 4250. Designed for senior students in the Coordinated Undergraduate Program in Dietetics.

4241 Clinical Experience in Dietetics (2) Advanced educational experiences applying principles of nutrition in disease in selected health care facilities. Coreq: 4240. Open only to students in the Coordinated Undergraduate Program in Dietetics.

4330 Readings in Nutrition (3) Reports and discussions of current literature. Prereq: 3410.

4430 Diet and Drug Therapy (3) Effect of drug therapy on absorption and utilization of nutrients, and effect of diet on absorption, utilization and toxicity of drugs. Prereq: 3415 or consent of instructor. 3 hrs.

4440 Clinical Experience in Dietetics (4) Experience in providing coordinated and continuing nutritional care in health delivery systems. Prereq: 4031. Open only to students in Coordinated Undergraduate Program in Dietetics.

4450 Field Experience in Nutrition (1-6) Planned educational experiences based on individual needs and interests of students.

4710 Contemporary Developments (1-3) Student or staff initiated course for study of special topic(s) pertinent to the field; topics selected to be determined by students and instructor with departmental approval. Elective credit only. Prereq: Consent of instructor. May be repeated with departmental approval for credit up to 9 hrs.

4978-88-98 Honors: Nutrition (1-4) Problems for juniors and seniors with special ability and interest in nutrition. Prereq: Consent of department head. Hrs arranged.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5110-20 Advanced Physiological Chemistry (4, 3)

5140 Foods and Nutrition: Physicochemical Principles (3)
Food Systems Administration (388)

2910 Seminar in Tourism, Food and Lodging Administration (2) Overview of tourism including food and lodging segments of tourism and pro fessional curriculum. Contacts with industry through field trips and guest speakers. Students must pay own expenses for field trips.

3000 Dimensions of Tourism (3) Economic and cultural impact of tourism on society. Examination of forces influencing the domestic and international tourism industry.

3110 Quantity Food Procurement, Production and Service (5) Application of principles necessary for determining needs, procuring, storing, producing and serving foods in volume. Prereq: Food Science 1010 or 2510, Economics 2130 or consent of instructor. 3 hrs and 2 labs.

3220 Tourism, Food and Lodging Administration Externship (5) Planned educational experiences in selected food and lodging operations or other tourist connected facilities. Prereq: 2910, 3110.

3320 Food Service Administration (2-3) Effective and efficient use of management resources in food service systems. Two credits to include lectures only. Three credits to include quantity food laboratory. Prereq: 3110 or consent of instructor. Not open to majors in food systems administration.

3820 Survey of Dietetics (1) Introduction to dietetics and to career opportunities; and role of dietitian in health delivery systems. Prereq: Junior standing.

4130 Food Systems Administration (3) Functions of management applied to food service systems. Prereq: 3110.

4140 Food Systems Personnel Development (3) Development of training programs for food systems personnel. Prereq: 4130 or consent of instructor.

4150 Design and Layout of Food Service Systems (3) Design of physical facilities and selection and purchasing of equipment for food service systems. Prereq: 3110 or consent of instructor.

4210 Tourism, Food and Lodging Managerial Field Experience (3) Comprehensive planned educational managerial experience in selected food services or food and lodging systems of tourist related enterprises. To be taken at the beginning of the senior year with consent of instructor. Prereq: 4130, 4150.

4250 Food and Lodging Managerial Cost Control (3) Cost analysis for control. Use of financial statements for decision making for food and lodging systems. Prereq: 4130, Accounting 2210.

4260 Food and Lodging Planning, Planning and Maintenance (4) Feasibility, planning development and construction of food and lodging physical plant and maintenance. Electrical, mechanical, heating, plumbing, air conditioning and ventilation and illumination systems. Types of building materials and construction. Prereq: 3110, 4150 or consent of instructor. 3 hrs and 1 lab.

4270 Tourism, Food and Lodging Information Systems Initiative: Qualitative and quantitative analysis of information systems for decision making in food and lodging operations or other operations related to tourist industry. Prereq: 4130, 4220, Computer Science 1410.

4310 Tourism and Lodging Administration (3) Examination of management principles, processes, and concepts applied to various departments in tourist and lodging facilities. Current problems in hospitality organization and operation. Prereq: FSA 4130.

4410-20-30 Clinical Experience in Dietetics (3) Development of technical, human and conceptual skills through planned educational experiences at increasing levels of administrative responsibility in selected food systems. Must be taken in sequence. Prereq: 3110; 4410 coreq to 4130; 4420 coreq to 4140. Open only to students in Coordinated Undergraduate Program in Dietetics. May be repeated. Maximum 6 hrs credit.

4710 Contemporary Developments (1-3) Student or staff-selected areas of special topic(s) pertinent to the field; topics selected to be determined by students and instructor with departmental approval. Elective credit only. Prereq: Consent of instructor. May be repeated with departmental approval for credit up to 9 hrs.

4800 Current Topics (1-3) Assigned reading and group discussion of research, literature. Hrs. and credit arranged. Prereq: 3110, or consent of instructor.

4900 Seminar (1-3) Review, organization, and reporting of literature on selected topics. May be repeated for credit. Prereq: 3410 or consent of instructor. Hrs. and credit arranged.

4978 Honors: Food Systems Administration (1-3) Special problems for juniors and seniors showing special ability and interest in institution administration. May be repeated for credit. Hrs. and credit arranged.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5110-20 Experimental Quantity Food Study (3, 3)

5210 Methods of Food Systems Research (3)

5220 Experimental Design of Food Systems Facilities (3)

5230 Food Systems Evaluation (3)

5240 Financial Management of Food Systems (3)

5310 Administration of Food Service Delivery Systems (3)

5500 Clinical Training in Health Care Agencies (3)

5700 Current Programs and Trends in Food Systems Administration (3)

5800 Problems in Food Systems Administration (1-3)

5850 Field Experience (3-9)

5900 Seminar in Food Systems Administration (1-3)

6110 Advanced Topics in Institution Administration (3)

6210 Manpower Planning and Training for the Food Service Industry (3)

6310-20 Quantitative Methods to Control Resources in Food Service Systems (3, 3)

6900 Seminar (1-3)

Home Economics (481)

Professors: L.M. Oidland (Dean), Ph.D. Wisconsin, D.Sc. Rhode Island; G.E. Goertz (Associate Dean), Ph.D. Kansas State.

Associate Professor: M.N. Perry (Dean for Graduate Studies), Ph.D. Tennessee.

Assistant Professor: V.S. Anagnost (Assistant Dean), M.S. Tennessee.

1010 Home Economics as a Profession (1) Scope of the profession of home economics; educational and professional preparation; personal qualities required and satisfaction to be gained from various careers within the profession. S/NC.

1510 Family Systems: Human Development (4) Definition, description and utilization of basic family systems concepts as applied to development of individual and family; emphasis on professional development and contribution.

1520 Family Systems: Aesthetic Environment (4) Examination of near and far environment from an aesthetic perspective with implications for quality of life of individuals and families.


3110 Methods of Community Services Development (4) The organization, education, responsibility to the objectives, methods and evaluation of community services programs. Prereq: Psychology 2900 or equivalent.

3510 Family Systems: Consumer Resources (4) Appraisal and application of effective management of resources with implications for role of professional in the interactions of individuals and families with society. Prereq: 3 hrs of economics, junior standing.

4000 Senior Seminar (2-15) Personal application of interrelated knowledge and professional competencies through experience in community service training to serve society in a professional capacity; gaining experience beneficial to chosen professional career; scope of current research and career opportunities in home economics; comprehension of professional ethics required of a home economist. May be repeated. Maximum credit 15 hrs. Prereq: Junior or senior standing. Consent of department head required for credit beyond 2 hrs. S/NC.

4110 Community Services Programs with Adults (3) Procedures and techniques in working with adults; individual, group and mass methods. Taken as an off-campus course of field training together with 4120. Prereq: 3110 and consent of instructor.

4120 Community Services Programs with Youth (3) Procedures and techniques in working with youth. Taken as an off-campus course of field training together with 4110. Prereq: 3110 and consent of instructor.
Textiles and Clothing (971)

Professor: A.J. Trehee (Head), Ph.D. Ohio State.

Associate Professors: I.M. Ford, Ph.D. Pennsylvania State; B.C. Green, M.A. (Great Britain); C.J. Noel, Ph.D. Notre Dame; T.L. Vigo, Ph.D. Tulane.

Assistant Professors: C.E. Cox, Jr., Ph.D. Tennessee; R.P. Dowlon, M.S. Tennessee; M.F. Drake, Ph.D. Pennsylvania State.

Instructor: A.L. Bullock, B.S. Mississippi College.

1180 Costume Analysis (2) Analysis and application of the basic principles of the different figure types and activities. 1 hr and 1 lab.

1165 Clothing (3) Fundamentals of pattern alteration, fitting and construction with emphasis on design quality and construction capability. Pre- req: 1160, 1 hr and 2 labs.

2110 Fashion (3) How fashion world works, from designer to consumer; fashion trends and cycles.

3330 Textiles (3) Textile products—study of consumer selection, preference and satisfaction with emphasis on performance. For non-majors only.

3410 Cultural and Functional Aspects of Textiles and Clothing (3) Cultural, socio-psychological, functional and technological developments in textiles and clothing. Prereq: 3 hrs of the following: child development and family relationships, economics; 4 hrs sociology or anthropology or psychology.

3420 Textiles I (3) Consumer-oriented study of textiles, emphasizing fibers, fabric construction and finishing in relation to use, serviceability and care of apparel and household fabrics. Prereq: 12 hrs chemistry or physics or biology or botany.

3429 Textiles Laboratory (1) Laboratory examination of fibers, yarns, fabrics and finishes. Coreq: 3420. Required for majors, optional for non-majors.

3440 Clothing II—Advanced Construction (3) Comparative study and investigation of fashion designs and processes utilizing basic principles including fitting, elementary flat pattern, quick tailoring methods and costume finishing techniques. Prereq: 1165. 1 hr and 2 labs.

3450 Consumer Issues: Clothing for Contempo- rary Families (3) Problems of clothing consumption encountered during various stages of family life cycle. Prereq: Junior standing.

3460 Design Analysis (3) Interpretation of dress design terminating in finished garments developed through media of flat pattern.

3470 Tailoring (4) Evaluation and use of tailoring methods as applied in selection, fitting and completion of tailored wool garments. Prereq: 3440. 3 labs.

3480 Historic Costume (3) Development of costume from ancient to modern times with consideration of historic, social, and economic settings.

3510 Fashion Merchandising: Planning and Control (3) Analysis of fashion merchandising practices and problems focusing on application of decision mechanisms. Prereq or coreq: 2110 and Accounting 2110.

4010 Textiles II (3) Recent textile developments with emphasis on man-made fibers, new construction techniques, D. O. Manches, Opportunity for individual investigation. Prereq: 3420.

4110 Fashion Buying (3) Analysis of buying practices, procedures, activities, techniques and underlying concepts fundamental to fashion merchandising. Prereq: 3510.


4130 Research Experiences (3-15) Individual juniors and seniors showing special abilities may be assigned research leading to research within department or work in research and development laboratory or quality control department of fiber, chemical or textile company. Prereq: Recommendation of head of department and research adviser, 4140, 2140, and 3 hrs of statistics. May be repeated. Maximum 15 hrs credit.

4140 Introduction to Textile Testing Methods (3) Methods and equipment used in practical testing as approved by recognized textile groups. Prereq: 3420, 1 hr and 2 labs.

4210 Elementary Textile Microscopy (3) Microscopic techniques as applied to study of textile fibers and fabrics. Prereq: 4010. 1 hr and 2 labs.

4220 Textile Fiber Chemistry (3) Chemistry of textile fibers with emphasis on structure, preparation and reactions. Implications relating to dying and finishing of fabrics. Prereq: One quarter of organic chemistry. 3 hrs and 1 lab.

4230 Theory and Interpretation of Fashion Design (3) Analysis and application of historical, sociological, cultural and environmental sources of costume design interpretation with emphasis on original contemporary design. Prereq: or coreq: 1165, 3410, or 3420. 2 hrs and 2 labs.

4240 Design Analysis II (3) Interpretation of dress design terminating in finished garments developed through the media of draping.

4510 Teaching Materials (3) Investigation, preparation and evaluation of teaching materials. For students planning to teach or do home demonstration work. Prereq: 3440, senior standing, 1 hr and 2 labs.

4620 Introduction to Field Experience in Merchandise Manage ment (1) Internships with store personnel, placement and planning for field experience. Prereq: Economics 3110-30, junior standing, concentration in apparel option, approval of program coordinator, and a minimum grade point average of 2.2. Open only to students who intend to enroll in 6020-40. May not be repeated.

4630 Field Experience in Merchandising (9) Off-campus, supervised experience in a cooperative program with business establishments which merchandise textiles and/or apparel. Prereq: 4620, senior standing, major in merchandising, and a minimum grade point average of 2.2; coreq: 4640. Offered fall quarter only.

4640 Methods in Field Experience (6) Investigation of training systems and store organization analyses of jobs, and evaluation of field experience. Prereq: 4620, senior standing, major in merchandising, and a minimum grade point average of 2.2; coreq: 4630. Offered fall quarter only.


4710 Contemporary Developments (1-3) Student or staff initiated course for study of special topic(s) pertinent to the field; topics selected to be determined by students and instructor with department approval. Elective credit only. Prereq: Consent of instructor. MAY be repeated with departmental approval for credit up to 5 hrs.

4978S-88 Honors: Textiles and Clothing (3, 3, 3) Individual problems for juniors and seniors showing special ability and interest in textiles and clothing, as approved by recommendation of head of department. Hrs arranged.

GRADUATE 5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5110 Textile Testing and Methods of Research in Textiles (3)

5120 Advanced Problems in Textiles and Clothing (3)
College of Law

Kenneth L. Penegar, Dean
Mary Jo Hoover, Assistant Dean
Curtis L. Wells, Associate Dean

The University of Tennessee College of Law commenced operation in 1899 and has continuously sought to provide high quality legal education in a university community. While the principal objective of the college is to prepare students for the private practice of law, its total mission is more broadly conceived. The college exposes students to the legal issues of our society enabling them to develop analytical skills in respect to decisional law and statutes, the ability to communicate effectively to others their knowledge of the law, an awareness of the historical growth of the law, a knowledgeable appreciation of the interrelationship of law and society, and the ability to use law as an implement of societal control and development. Students are thus equipped to serve their community not only as advocates and counselors, but as policy makers and active, responsible citizens.

The coordinated program of the college has three dimensions. Teaching and learning, research into and appraisal of our legal systems and institutions, and service to the community. Each plays a significant role in the college as a modern law center.

The teaching and learning element of legal education at the college involves a cooperative classroom interaction between faculty and students in the analytical study of a host of questions and problems found in today's legal profession. These involve decisional law, statutory interpretation, administrative regulation, techniques of trial and appellate advocacy, and the roles and responsibilities of the lawyer in advising and representing clients. While proper consideration is given to the problems of Tennessee law, the course of study is conducted with a view toward providing an awareness and understanding of the regional and national perspective so as to prepare our students for service in any state.

The college is also directly involved in providing service to the community of which it is a part. A major element of public service is centered in the Legal Clinic where students, under the guidance of skilled and experienced licensed practitioners, provide legal services to indigent persons of Knox County. Additionally, through research, consultation, and other services to legal institutions and groups within the state, the college seeks to participate in the development and improvement of the society in which its students may eventually practice law. The Public Law Research and Service Program and the Continuing Legal Education Program are primary examples of this function.

In combination, the direction and objectives of the college lead to the development not of a narrow technician, but of a student of the law with the perspective, breadth and understanding necessary for the accomplishment of the many tasks assigned by society to the legal profession.

The College of Law Building

Since 1950 the college has occupied a building especially designed for teaching, study, and research in the law. In the spring of 1971 the college occupied the new wing begun in the fall of 1969. The new addition has doubled the available facilities. The library, the classrooms, and the offices are air-conditioned. Adequate classrooms, courthouses, seminar rooms, a private office for each full-time faculty member, the well-equipped offices of the Legal Clinic, and a spacious, well-lighted Law Library are contained in this modern building. Stack space for more than 200,000 volumes will permit the repository of one of the largest law book collections in the South.

Legal Clinic

The University of Tennessee Legal Clinic was established in 1947. Though the Legal Clinic provides legal assistance to indigent persons, it is designed primarily as a teaching device to correlate theory and practice. It introduces the student under faculty supervision to the law in practice through personal contact with clients and their problems. The Legal Clinic functions as a large law office in which the student gains experience in interviewing clients, writing legal letters, investigating and evaluating facts, preparing memoranda of law, preparing cases for trial or adjustment, and briefing cases. Classroom work supplements the handling of actual cases. The student is thus trained in the technique of law practice and the management of a law office. The ethical responsibilities of lawyers and their function as public servants are stressed. Under present rules of the Tennessee Supreme Court, students, under the direct supervision of the Legal Clinic staff, are certified to practice before all the courts of Tennessee.

The Law Library

The Law Library contains the official state reports of all states, the complete National Reporter system which covers all states and the federal courts, the Annotated Reports, standard sets of miscellaneous reports, the reports of the Canadian cases and of English cases from the yearbooks to date. In addition to these, there are adequate encyclopedias, digests and dictionaries, standard textbooks, law reviews, and current looseleaf services, totaling together more than 100,000 catalogued volumes. The library is under the supervision of a law librarian who is trained in law and library science. The physical facilities, the collection of books, and the library staff combine to make the Law Library of The University of Tennessee one of the best in the South. Law students also have the use
of the collections in the University Main Library, which is located across the street from the Law Library, the Undergraduate Library a few blocks away and other branch libraries.

**Degree of Doctor of Jurisprudence**

The degree of Doctor of Jurisprudence will be conferred upon candidates who complete, with average, nine quarters of resident law study and who have 126 quarter hours of credit, including all required courses. The required average is 2.0 and that average must be maintained on the work of all nine quarters and also in the last three quarters. Averages are computed on weighted grades. Grades are on a numerical basis from 0.0 to 4.0. A grade of 0.5 or below is a failure.

Eligible law students may receive credit towards the J.D. degree for acceptable performance in up to three (3) courses taken in other departments at The University of Tennessee. Course selection and registration are subject to guidelines approved by the law faculty which includes the requirement that any such course be acceptable for credit towards a graduate degree in the department offering the course.

**Note:** Students are advised to consult the University’s degree requirements as stated in the front section of this catalog as well as the requirements for this college.

**Dual J.D.-M.B.A. Degree Program**

The College of Business Administration and the College of Law offer a coordinated dual degree program leading to the conferral of both Doctor of Jurisprudence and the Master of Business Administration degrees. A student pursuing the dual program may save up to two academic quarters (24 quarter hours) of course work which would be required if the two degrees were to be earned separately. The J.D.-M.B.A. program must make separate application to, and be competitively and independently accepted by, the College of Law and the College of Business Administration. The M.B.A. degree may only be earned in the Graduate School and College of Business Administration for the M.B.A. degree, and by the Dual Degree Committee. Students who have been accepted by both colleges may commence studies in the dual program at the beginning of any quarter subsequent to matriculation in both colleges, provided, however, that dual program studies must be started prior to entry into the last 24 quarter hours required for the J.D. degree and the last 24 quarter hours required for the M.B.A. degree.

**Curriculum.** A dual degree candidate must satisfy the graduation requirements of each college. Dual degree students withdrawing from the dual degree program before completion of both degrees will not receive credit toward graduation from either college for courses in the other college, except as such courses qualify for credit without regard to the dual degree program. For students continuing in the dual degree program the J.D. and M.B.A. degrees will be awarded upon completion of requirements of the dual degree program.

The College of Law will award credit toward the J.D. degree for acceptable performance in a maximum of 12 quarter hours of approved graduate-level courses offered by the College of Business Administration. Three of the 12 quarter hours must be earned in Accounting 5810 or a more advanced accounting course. If College of Law credit is given for such accounting course, the dual degree student may not receive College of Law credit for Legal Accounting (Law College Course No. 8590).

The College of Business Administration will award credit toward the M.B.A. degree for acceptable performance in a maximum of 12 quarter hours of approved courses offered by the College of Law.

Except while completing the first year courses in the College of Law, students are encouraged to maximize the integrative facets of the joint program by taking courses in both colleges each quarter.

**Gaining of Grades.** For grade recording purposes in the College of Law for graduate business courses and in the College of Business Administration for law school courses, grades awarded will be converted to either Satisfactory or No Credit and will not be included in the computation of the student's grade average or class standing in the college where such grades are so converted. The College of Law will award a grade of Satisfactory for a graduate business course in which the student has earned a B grade or higher and a No Credit for any lower grade. The College of Business Administration will award a grade of Satisfactory for a College of Law course in which the student has earned a 2.3 grade or higher and a No Credit for any lower grade. Grades earned in courses of either college may be used on a regular graded basis for any appropriate purpose in the college offering the course. The official academic record of the student maintained by the Registrar of the University shall show the actual grade assigned by the instructor without conversion. The student must pass a final written comprehensive examination to receive the M.B.A. degree.

**Satisfactory/No Credit Option**

1. **Course eligibility.**
   - Required courses may not be taken on a Satisfactory/No Credit (S/NC) basis except as specifically designated.

2. **Satisfactory/No Credit**
   - Election to take courses on a Satisfactory/No Credit basis must be made at the time of registration and cannot be changed thereafter.
   - Students who register for a course Satisfactory/No Credit when they are ineligible to do so will be required to change to regular grading when the error is discovered.
   - Credit will be given for a course taken on a Satisfactory/No Credit basis only in quarters in which the student completes (receives a grade in) at least 10 hours on a regular grade basis.

**Maintenance of a Satisfactory Record**

No student will be excluded from the College of Law for academic reasons prior to the completion of three quarters of academic study. A full-time student who fails to achieve an overall average of at least 2.0 upon completion (receipt of a grade) of three quarters of academic study shall be excluded. A student who obtained permission to vary the first-year full course load shall be excluded if such student fails to achieve an overall average of at least 2.0 upon completion (receipt of grade) of all required first-year courses, or upon completion of 40 hours, whichever first occurs.

**Maximum Course Load Per Quarter**

Eighteen hours is the maximum for the college. If a student does not satisfactorily complete 12 hours in a quarter, then for the remainder of studies the student is restricted to 16 hours per quarter.

**Clinical Courses**

A student may take no more than a total of three clinical courses for law credit and normally no more than one clinic course per quarter. Clinical courses are 8600, 8605, 8620, 8625, 8630, and 8632-34.

**Admission**

Information regarding admission, financial aid, academic policies, extracurricular activities, and student services is available in the College of Law Bulletin. Students interested in the college should obtain a copy of the Bulletin from the Office of the Assistant Dean, The University of Tennessee, College of Law, 1505 West Cumberland Avenue, Knoxville, Tennessee 37916. Completed application should be received before March 1 of the year of expected admission.
Program of Instruction

The following program is designed to give the student an adequate preparation for the practice of law. From 12 to 15 hours of classroom work a week are required of all full-time students. The required courses will be taken as early in the law course as possible or as scheduled by the law faculty. See statement of course availability at end of section.

REQUIM COURSES

8010 Civil Procedure I (4) Introductory course. Designed to give an understanding of the rules governing the conduct of judicial proceedings. Principles applicable to all civil and chancery courts.

8020 Contracts I (5) The basic agreement process and the legal protection afforded contracts. Problems of offer and acceptance, consideration, enforceability, and the statute of limitations.

8030 Contracts II (4) Concentration in remedies begun in Contracts I. Concentrating on remedies of damages, specific performance, and equitable remedies.

8040 Criminal Law (4) Course on substantive aspect of criminal law. General principles applicable to all criminal conduct, then specific analysis of particular crimes. Substantive defenses to crimes, including insanity, intoxication, mistake, necessity, legal duty, self-defense, and duress.

8070 Legal Process (3) Introductory course on judicial process. Brief survey of judicial organization and procedure, legal history, case analysis, significance of precedent, influence of the judge as policy maker, adversary system, and role and responsibilities of the lawyer as advocate. Legislative interpretation and legislative history.

8110-11 Research and Writing I, II (3, 2, 2) This three-quarter sequential course offers opportunities for students to develop their writing skills through participation in the law school’s writing program. Some assignments require that students write legal research papers. Class assignments are designed to enhance students' ability to prepare legal research papers and to critique the work of other students.

8130 Property I (4) Freehold estates, future interests, concurrent ownership, leases, Real estate contract and deed. Principles of personal property.

8140 Property II (5) The recording system, title assurance, easements, nuisances, burden support, water rights, zoning and eminent domain.

8180 Torts I (4) Intended interference with the person, assault and battery, false imprisonment, Negligence and standard of care, proof of negligence. Affirmative duties, immunity, actual causation, and contributory causes.


8300 Constitutional Law I (4) Judicial review, limitations on judicial power, national legislative power, regulation of commerce, power to tax and spend, sources of national power, state power to regulate and tax, intergovernmental immunities.

8310 Constitutional Law II (4) Freedom of expression, association, and religion. Fourteenth Amendment rights of criminally accused, including discrimination as to race, sex, etc., right to franchise and apportionment, concept of state action in matters of civil rights.

Either 8300 or 8310 will satisfy the Constitutional Law requirement. One must be taken for that purpose and the other may be taken as an elective.

8600 Legal Profession (3) Role of the lawyer in society and ethical responsibilities implied in that role. Admission to the Bar, the organized profession, solicitation, advertising, unauthorized practice, conflict of interest, decision to represent or withdraw as counsel; fiduciary relationship, advocacy and its limitations, fees and disciplinary procedures.


ELECTIVE COURSES

8050 American Legal History (3) Examination of historical development of the law, legal institutions, legal profession, and legal education from colonial times to present. Historical relationship of legal system to society emphasized.

8060 Criminal Process I (3) Due process, arrest, search and seizure, wire tapping and electronic eavesdropping, entrapment, right to counsel, self-incrimination, interrogation and confession, exclusionary rules.

8065 Criminal Process II (3) Bail, prosecutor's discretion, Grand Jury, preliminary hearing, Jurisdiction and venue, joinder and severancy, guilty pleas, speedy trial, notice and discovery, nature and cause of accusation, compulsory process, confrontation, trial by jury, adverse publicity, double jeopardy, appeals, habeas corpus.

8160 Interviewing and Counseling (3) Lawyer's role as intervener and counselor. Designed to increase interpersonal skills by developing heightened sensitivity and understanding of emotional and psychological forces. Use of videotape techniques and role playing. Models developed from which students can analyze and evaluate classroom efforts.

8170 Trial Practice (3) Criminal and civil litigation, with primary emphasis on trial problems and preparation. Basic trial strategy, professional responsibility, fact investigation, witness preparation, discovery and presentation of evidence, selection and instruction of juries, opening and closing arguments.


8525 International Business Transactions (3) Legal status of persons abroad, acquisition and use of property within a foreign country, international business abroad as a corporation, engaging in business within a foreign country, and expropriation or annulment of contracts or concessions. Prereq: 8530, 8533.

8530 International Law I (3) International agreements, organizations, recognition of states, nationality, territory, jurisdiction and immunities.

8533 International Law II (3) International claims, expropriation, force and war.

8535 Jurisprudence (3) A comparative examination of legal theory, sociological, analytical, and historical jurisprudence, utilitarianism, analytical jurisprudence, sociological jurisprudence, legal realism, and legal pluralism.

8540-42 Labor Relations Law I, II, (3) Evolution of labor relations laws, rights of self-organization; employer and union unfair labor practices; strikes, boycotts and picketing, collective bargaining; public employee labor relations; internal union affairs; individual rights in labor relations; employment discrimination; federalism and preemption and unions and the antitrust laws. Courses recommended in sequence, but one offering may be elected.

8545 Juvenile Law Seminar (3) After examining the unique history and philosophy of juvenile justice system, course will consider jurisdiction, judicial and extrajudicial functions of juvenile court, and various disposition alternatives. Students will read judicial opinions and materials from fields of history, sociology, and psychology. Knox County Juvenile Court will serve as laboratory for students, and professional staff from the Court will participate in seminar on regular basis.

8550 Labor Relations Law Seminar (3) Study and discussion of selected labor relations law problems.

8555 Negotiations and Dispute Settle (3) Study of: (1) Negotiations process and its role in labor disputes, with training in art of negotiating and settling disputes in manner which fulfills the needs and requirements of clients and avoids unnecessary liability; (2) Employment contracts and further development of institutional methods of dispute settlement, including pretrial procedures, grievance procedures, mediation and other third party intervention.

8560 Law, Language and Ethics (4) An intermediate level jurisprudence-type course. Law is the mind's attempt to determine, direct and administer human activity. Exploration of ethical values underlying formal legal reasoning and statement. Analysis of judicial reasoning in legal concepts through the methods of epistemology.


8580 Law and Current Problems Seminar (2-3) Credit hours depend on the option of instructor. May be repeated for credit.

8590 Legal Accounting (2) A course designed to familiarize law students with accounting problems and techniques, and to enable them to use and understand accounting information.

8600 Civil Advocacy (5) Nature, function, dynamics, and processes of lawyering and legal practice. Emphasis on development of frameworks and models useful in helping law students evaluate their roles in legal system. In addition to classroom component, supervising attorneys will be offered to introduce students to such lawyering skills as interviews, negotiations, pleadings, drafting, research, case management and practice. Prereq: 8940 and 8420 or 8440.

8605 Advanced Civil Advocacy (5) Students continue and complete complex civil cases. Expanded opportunities for civil court, jury trials, appeals and public interest litigation. Classroom component deals in more advanced skills and strategy. Prereq: 8940 and 8420.

8615 Regulated Industries (3) Federal and state governmental regulation of natural monopolies and other "regulated industries" (e.g., transportation, public utilities, broadcasting).

8620 Criminal Advocacy (5) Classroom component devoted to trial skills and strategies. Case loads diversified among crimes with intensive staff supervision. Courtroom experience limited to preliminary hearings and misdemeanor charges in general sessions and city courts. Prereq: 8605 or 8606 and 8420 or 8440.

8625 Advanced Criminal Advocacy (5) Students assume responsibility for entry, exit, strategy, and practice in circuit courts and prosecution of appeals. Investigation and case preparation in conjunction with staff attorney supervision. Classroom component deals in more advanced skills and strategy. Prereq: 8620.

8630 Specialty Clinic (5) Each component headed by a faculty supervisor. Intensive field experience on a specialized problem in conjunction with seminar on course topic. Major litigation and law reform efforts may be involved.

8632-34 Economic Development Clinic (2, 3) Two-quarter course in conjunction with business and economic ventures. Emphasis on non-litigative skills: negotiation, counseling, document drafting, business management, grantsmanship and limited representations before administrative agencies. Course extends two quarters and completion of both quarters is required for hours and graded credit. Incomplete (I) will be assigned for 8632 (first two-hour seminar). Course may be graded non-graded only upon completion of 8634 (second section, 3 hrs credit). Prereq: 8740 and 8862.

8640 Legal Draftsmanship (2) Independent drafting by students under direct supervision of instructor.

8650 Intellectual Property (3) Protection for intellectual property under federal and state law; patent secrets, rights, tax considerations and international aspects.

8670 Legal Writing (1-4) Legal research and writing of papers on problems of law. Work on Tennessee Law Review may count towards the 4 credit requirement. One hour credit may be given for preparation of brief in National Moot Court Competition. May be repeated for credit. Prereq: Faculty consent.

8680 Legislation (3) Approximately half the course is devoted to traditional case method approach to such problems as interpretation, drafting, and enacting statutes. The remainder of course is devoted to class project in which class considers a potential area for legislative reform from preliminary research, through a legislative hearing, to final drafting, parliamentary debate and voting.

8690 Modern Land Use Law (3) Land use planning, nuisance, zoning, and eminent domain.

8700 Local Government Law I (3) Distribution of power between state and local governments. Sources of authority for limitation on local government operations. Creation of local governmental units and determination of their boundaries. Home Rule.

8705 Local Government Law II (3) Problems presented by fragmentation of local government units. Current solutions to law problems, as authorized by Tennessee law. Problems in the financing of local services. Current constitutional
issues (e.g., school financing and land use control). Influence of federal programs on local government finance and decision making.

8710 Oil and Gas Law (3) Selected materials on nature of interplay between regulatory, financial, and political issues, and the development of federal and state regulatory and tax laws.

8720 Advanced Constitutional Law (3) Select problems or perspectives in constitutional law. Designation of topics intended to cover issues of current importance in contemporary constitutional law.

8730-35 Tennessee Legal System Seminar (3, 3) Basic legal system of Tennessee from perspective of its impact on today's daily life of citizens. Focus on law of contracts, real property with emphasis on landlord and tenant, family law, torts, juvenile law, and bankruptcy.

8790 Land Acquisition & Development (3) Alternative business forms and assignments of students to perform a group project.

8840 Taxation (Estate, Gift and Inheritance) (3) Federal Estate and Gift Tax laws. History and development of the tax. Interpretation of the two taxes. Discussion of recent developments.

8850 Seminar in Tax Law and Mental Health (3) Composed of equal number of law and medical students. Students are paired and their goal is to prepare papers. Jointly taught by professor and psychiatrist.


8862 Taxation (Income) II (3) Taxation of corporations. Provision of the corporation. Partnerships; small businesses; trusts; estates.

8865 Taxation (Income) III (3) Corporate reorganization; methods of corporate distributions; sale of corporate business; income tax and planning of corporations.

8870 Seminar in Business Planning (3) Selected problems on corporate and tax aspects of business planning and transactions.

8890 Seminar in Environmental Protection (3) Through team-teaching and input of selected experts, will focus on specific problems of the environment. Problems of proving environmental impact of selected projects, interpretation and evaluation of scientific data, use of expert witness. Attention will also be given to major environmental concerns of the region, e.g., TVA operations, strip mining, forest management, wildlife preservation.


8907 Administrative Law Seminar (3) In-depth study of administrative law not covered in basic courses, as discretion, choice of adjudication of rulemaking to develop administrative policy, consistency in administrative action.


8930 Seminar in Consumer Protection (3) Selected problems in consumer protection.

8935 Law and Medicine Seminar (3) Examination of medical professions role in the judicial process, including: (1) medical malpractice and alternatives to fault-based liability; (2) responsibilities for disposition of cadaver bodies and legal principles governing organ transplantation; (3) expert medical proof and testimony; (4) medical-legal aspects of euthanasia; (5) other specific matters such as legal import of medical profession's various canons of ethics.


8945 Trial Moot Court (1) Experience and training in trial of law and equity cases. Third-year students will act as counsel in all aspects of trial practice. Knox County Circuit Court Judges serve as judges of Trial Moot Court. S/NC.

8950 Trial Moot Court (1) (1) Training in trial of law suit. S/NC.

8955 Seminar in Trade Regulation (3) Study and discussion of selected problems arising under antitrust laws and laws applicable to regulated industries.

Course Offering Subject to Change

The necessity of adjustments to accommodate changing conditions may dictate modifications in the course offerings and other features of the program described above. Accordingly, the college reserves the right to make such variation in its program as circumstances may require. Prospective students who are interested in the precise course offerings at a given time or who desire other special information should make inquiry in advance.

It is necessary to offer some courses and seminars only on an every-other-year basis. Choice is based on subject matter and past patterns of student enrollment. In order to facilitate student and faculty planning these courses and seminars are listed as follows: 8350, 8510, 8520, 8525, 8570, 8705, 8710, 8720, 8780, 8830, 8890, 8955. These may be offered in the summer quarter session or upon availability of added faculty, this will be done only after satisfying other priorities.
College of Liberal Arts

Robert G. Landen, Dean
Charles O. Jackson, Associate Dean
Garrett Briggs, Associate Dean for Research and Resource Development
Boyd L. Daniels, Assistant Dean

The arts and sciences encompass the entire range of human knowledge, from the earliest records to the latest laboratory results. All that humans beings have observed about themselves, about their societies, and about the natural world around them is of concern to one or another of the arts and sciences.

The curriculum of the College of Liberal Arts reflects this wide-ranging concern with the life of the mind. It emphasizes the breadth of human knowledge, perceived not only in terms of the traditional categories of the humanities and the natural and social sciences but also in broader perspectives which extend across academic fields and reach beyond the boundaries of a college of liberal arts. It also stresses depth of learning, thereby seeking to acquaint the student with the rigors of the intellectual process. Through a study of the liberal arts one thus learns to participate in an intellectual tradition which is independent of particular teachers and which guides one in the choice of subjects for investigation and in the interpretation of those subjects. With time the individual begins to apprehend the great outlines of knowledge, the principles upon which it rests, the scale of its parts, and its lights and shadows.

The central purposes of a liberal education include the encouragement of intellectual tolerance, a dedication to the quest for knowledge as a worthwhile goal in and of itself, and the cultivation of a responsible, creative, individual mind.

These qualities should enable one to develop throughout life an ability to reason and to express oneself clearly, an incentive to absorb emerging knowledge, and a competence to confront the uncertainties of human experience. For the student whose interests and 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.

At the heart of a liberal education is an appreciation of and a familiarity with a great triad: language, literature, and the arts; history and society; science and mathematics. These three great well-springs of human thought are sources of the programs of study offered students in the College of Liberal Arts.

Programs of Study

Granting the broad, general goals of a liberal education, students come into the college with a wide variety of specific educational and vocational objectives. Recognizing this diversity, the College offers a number of different programs of study leading to the baccalaureate degree, and also several preprofessional curricula which prepare the student for advanced study but do not lead to a degree from this college.

Degrees Offered

1. BACHELOR OF ARTS

The Bachelor of Arts is the basic liberal arts degree, representing the attainment of a broad knowledge of the arts and sciences as well as a comprehensive understanding of one or more areas of special interest. Four programs leading to this degree are open to the student:

(a) Basic Program—The program appropriate for most B.A. students, it is developed around broad area requirements in the Triad plus intensive study in one or more of the specified departmental or interdepartmental major fields described below.

(b) Individualized Program—Designed for students whose educational goals are best met by a program tailored to their particular needs, it is similar to the Basic Program in broad area requirements but permits the student to develop an individual concentration incorporating work in two or more departments.

(c) College Scholars Program—Intended for a limited number of students who are especially highly qualified and motivated and who have been selected to undertake this honors-level program, the College Scholars Program permits the student maximum freedom to design a curriculum to meet particular interests and goals.

(d) Pre-Professional Program—The Pre-Professional Program is offered for those who wish to participate in one of the cooperative 3-1 curricula in the health sciences (medicine, dentistry, pharmacy, or medical technology). The student proceeds directly to specialized training in the chosen area after the third year of liberal arts study and offers the first year of professional study in lieu of a major concentration in the college in satisfying the requirements for the B.A. degree.

2. BACHELOR OF FINE ARTS

The Bachelor of Fine Arts degree represents intensive study preparing students for graduate study and professional positions in art. The degree is offered with a major in studio art. Recommended course combinations for those who desire to concentrate in communication design, drawing, painting, oil, watercolor, printmaking or sculpture are available in the art department office.

3. BACHELOR OF MUSIC

The program leading to the Bachelor of Music degree prepares students for graduate study and for positions in which a professional degree is required. The degree is offered with a major in music which has concentrations in music theory,
composition, music history and literature, piano literature, and applied music (voice—organ—strings—woodwind, brass and percussion instruments—multiple woodwind instruments).

(4) BACHELOR OF SCIENCE IN CHEMISTRY

The Bachelor of Science in Chemistry is a professional degree designed in accordance with standards set by the American Chemical Society to train students to go directly into positions in the chemical industry or to enter graduate study leading to positions in research and college teaching. Students may elect either the four-year resident program or a five-year cooperative program in which they alternate a quarter of study with a quarter of work in a chemical industry, thus gaining seven quarters of on-the-job experience while earning the degree.

Program Planning

Each student's academic program is highly individualistic, reflecting that person's special interests, goals, and aspirations. Usually it will reveal a growing intellectual sophistication and the development of particular motivations. On occasion, the student's list of required courses may express his or her interests and aptitudes. The student must select courses which meet the University's requirements and which fit his or her program of study.

The importance of program planning can hardly be overstressed. A few students enter the college with firm educational objectives in mind and their programs develop quite readily around these predetermined goals. Many, however, do not reach that stage of certainty until their academic careers are relatively far advanced. For these persons the exploration of possible directions and programs, in consultation with faculty advisers, is an important part of the educational process. It is essential for these students to develop their programs carefully and creatively in order that maximum flexibility in their ultimate decision making may be assured.

A basic decision, of course, is the degree to be sought. If it is one of the three professional degrees (Bachelor of Fine Arts, Bachelor of Music, or Bachelor of Science in Chemistry), the student's program will be somewhat circumscribed, for these degrees are necessarily more prescriptive than the general liberal arts degree. If the student chooses to work for the Bachelor of Arts degree, the three elements which make up the curricula leading to that degree will need to be kept in balance: the broad requirements in the Triad, the major area, and the elective courses, which support and supplement the work in the first two categories. Most students find it desirable to lay a broad foundation by taking courses which will satisfy these requirements in the first two years, thus reserving most of the final years for in-depth study in the area of concentration. Elective courses may be taken at any time.

Advisers in the Liberal Arts Advising Center (220 Ayres Hall), in the various major departments, in the University Counseling Center, and elsewhere on campus are available to assist students with their program planning. In the final analysis, however, only the student can determine the program which will best satisfy particular needs.

Requirements for Degrees

Bachelor of Arts

As has already been stated, the general liberal arts degree is the Bachelor of Arts, and it is the appropriate objective for most students in the college. Requirements for this degree and the several curricular programs which lead to it will now be discussed in detail.

Note: Students are advised to consult the University's degree requirements as stated in the front section of this catalog as well as the requirements for the college or department.

GENERAL REQUIREMENTS

Each student seeking a Bachelor of Arts degree must develop a program which includes the following:

1. A minimum of 180 credit hours;
2. At least 60 credit hours in courses numbered 3000 or above;
3. Appropriate work to satisfy the broad requirements of the Triad, counting no course for more than one Triad area (Basic Program, Individualized Program, and Pre-Professional Program only);
4. A major consisting of at least 36 credit hours in courses numbered 2000 or above as specified by the department or program, and counting no course in this major which has been used for Triad credit. A course which satisfies a Triad requirement may serve, however, as prerequisite or corequisite to a major. A major must be earned in every course counted as part of a major. Students transferring from other institutions must complete at least 12 credits at The University of Tennessee, Knoxville in each major awarded on this campus.

Multiple Majors:

After the general requirements described above have been satisfied, additional majors may be recorded on the transcript without regard to course overlap among majors or among these additional majors and Triad requirements. Students developing multiple majors must specifically declare this intent at the time they apply for graduation. Once a student has graduated, the establishment of additional majors becomes subject to University second-degree requirements.

Optional Minors:

If desired, and at the time of applying for graduation, single or multiple minors may be recorded on the academic record without regard to course overlap among minors and majors or among minors and Triad requirements. Minors require a minimum of 24 credit hours in courses numbered 2000 or above. They are available in most departments or programs in which majors are offered and are available in the following:

- Biochemistry
- Physical Sciences
- Portuguese
- Women's Studies

Minors may be developed in other colleges or schools of the University, but they must be approved by the department head in which the minor is proposed as well as the Assistant Dean for Student Academic Affairs in Liberal Arts. At least 6 of the 24 credit hours required for a minor must be completed at The University of Tennessee, Knoxville.

I. Basic Program

A. THE TRIAD:

- Language, Literature, and the Arts
- History and Society
- Science and Mathematics

Language, literature, and the arts play a vital role in shaping human experience and perception. They give expression to human thought and feeling and give form and order to a sense of the world. The written and spoken word, the dramatic motion and gesture of theatre, film, and dance, the sensory structures which address the eye and ear in painting and sculpture, architecture and music—all of these help define what is human.

It is important that every student of liberal arts become acquainted with these modes of experience within this culture and through exposure to cultures that are foreign, distant, and strange. To know what one is not is essential for knowing what one is.

Although there is no universal formula for determining which disciplines, skills, and enjoyments are of primary or of secondary importance, the written and spoken word has a wider range of reference than any other human skill. A basic competence in writing and reading is thus a minimal condition for knowing how to think about and relate all other activities.

The study of history is an integral part of a liberal education. Because human beings build and create with an understanding of the present requires an historical perspective. Such perspective may be developed by a number of courses, including the traditional survey of western civilization or other broad surveys such as Asian history, Latin American history, history of the United States, and Afro-American history. More specialized courses in the history of particular segments of human experience, e.g., philosophy or religion, may also prove valuable.

A liberal education presupposes not only an awareness of the past but also a familiarity with contemporary social institutions, processes, and practices. From a wide variety of offerings in the social sciences the student may choose courses useful in acquiring that familiarity. Only by such knowledge can people of good will hope to maintain humane values in a world threatened by urbanization, and other dimensions of technological change.
patterns of individual and collective behavior.

Study of science and mathematics develops in the student an inquiring attitude toward the natural environment and a desire to understand scientific explanations of diverse phenomena. These ends may be realized through an understanding of the empirical and the rational in scientific methods of inquiry and an awareness of the limitations of science and technology in solving problems. The student should attain a knowledge of the way in which the development of science and technology has affected beliefs, philosophies, and the development of civilization.

**Specific Requirements in the Triad**

1. **Language, Literature and the Arts**
   
   **(a) Writing Proficiency**
   
   Each student is required to demonstrate ability to use the English language effectively and coherently in one of the following four ways:
   
   (i) By completing nine credits in English writing courses in one of the following series: (1) English 1010, 1020, and three additional credits drawn from 1011, 1031, or 1033. Students who complete 1020 with the grade of A have the additional option to satisfy the remaining three credits in any 2000- or 3000-level writing course offered by the department. (2) English 1018, 1028, 1038. Students who obtain the grade of A or B in 1028 have the additional option, with permission, to satisfy the remaining three credits in any 2000- or 3000-level writing course offered by the department.
   
   (ii) By earning a score of 4 or 5 on the College Board Advanced Placement Test in English; or, with special permission, by earning a score of 3 on that examination and completing one 4-credit course in English at The University of Tennessee, Knoxville, with a grade of B or better.
   
   (iii) By passing (normally after completing one quarter of freshman English at UTK) a proficiency examination in writing, administered by the Department of English in cooperation with the Committee on Writing Standards.
   
   (iv) By completing 3 hours of freshman English followed by a minimum of 8 hours in courses which require substantial emphasis on writing. The writing-emphasis courses are identified by the Committee on Writing Standards; a list of those approved may be obtained in the office of the Department of English or in the Liberal Arts Advising Center.

   **Note:** Students should normally take English in the first quarter of their registration and continue to take English or a writing-emphasis course in each succeeding quarter until this requirement is met.

2. **(b) Literature, Foreign Language, and the Arts**

   The student may select any one of the following three options to satisfy this requirement:
   
   (i) 8 hours of literature in a foreign language in the 3000-level or above. Prerequisite: intermediate-level competence in the language, demonstrated by diagnostic (non-credit) or proficiency (credit) examination or by completion of the 2000-level sequence in that language.
   
   (ii) Intermediate-level competence in a foreign language demonstrated by diagnostic (non-credit) or proficiency examination or by completing a 2000-level sequence (or an approved equivalent) in that language, and a minimum of two courses of literature in English (originally in English or in translation) drawn from the list of courses published by the Committee on Language, Literature, and the Arts, available in the Liberal Arts Advising Center. Students who have had two years of high school study will often qualify a student for entry into a 2000-level language sequence.
   
   (iii) 24 hours in an interdepartmental program in literature, culture, and/or the arts, focusing either on (1) a particular nation or area other than the United States, or (2) a comparative study of literary and artistic modes, genres, or movements. Suggested programs are published by the Committee on Language, Literature, and the Arts and are available in the Liberal Arts Advising Center; students may also propose individual programs to the committee for consideration.

   **Note:** In options (i) and (ii), those who take the diagnostic examination will not receive credit toward graduation but will be exempted from the portion of the requirement satisfied by the examination. Those who take the proficiency examination may earn up to 16 hours of credit toward graduation for a two-year study of the language, in addition to the credit they earn for course work undertaken in the college. Normally two years of high school language study is regarded as equivalent to one year of college study. Students who have had four years of high school study of the same language should be able to satisfy the requirement for intermediate-level competence either by examination and those who have had less than four years of study may be able to satisfy a portion of the requirement in this way. Thus reducing the time required to satisfy this requirement. Full credit toward graduation is given for any language study undertaken successfully in the college regardless of the amount of previous study of the language.

   Students who have had less than two years of study of the same language in high school are admitted with an entrance deficiency. Satisfaction of the deficiency is required by the completion of the final quarter of the first year sequence of college level foreign language study, normally in the freshman year, is necessary to remove this deficiency.

3. **(d) History and Society**

   Each student must complete 24 hours of course work in this area including:

   (a) One 8-hour sequence from the several survey courses offered by the Department of History or in a comprehensive interdisciplinary sequence having a substantial emphasis on history.
   
   (b) 8 hours in courses with emphasis on man and society which are not primarily historical in nature.
   
   (c) The remaining hours may be taken in either categories (a) or (b).

   A list of courses which satisfy this requirement is published by the Committee on History and Society and is available in the Liberal Arts Advising Center.

4. **(3) Science and Mathematics**

   Each student must complete 24 hours of course work in this area, including:

   (a) One of the following two options:

   (i) An 8-hour sequence in a biological science; or
   
   (ii) An 8-hour sequence in a physical science.

   (b) 16 hours drawn from additional courses in the biological and/or physical sciences or from designated courses in:

   (iii) the history, philosophy, or social impact of science;
   
   (iv) mathematics and logic.

   No more than 16 hours may be applied toward this requirement from any one of the above four categories.

   A list of courses which satisfy this requirement is published by the Committee on Science and Mathematics and is available in the Liberal Arts Advising Center.

**B. THE MAJOR**

In many ways the most important part of each student's program is the major, for it is in this intensive study of one more or less limited field of knowledge that the individual begins to find a niche in the world of intellectual endeavor. The major may be drawn from the offerings of a single department or it may bring together related concerns of two or more departments. In either case the student should work out a program of study which has a definite design and aims at some overall objective. Guidelines are published by each major department as an interdisciplinary committee to assist the student in ascertaining goals and to provide a framework within which to develop a particular program. Additional assistance in the form of personal counseling is available in the Liberal Arts Advising Center and from designated faculty advisers in each major department or area.

Requirements for the specified majors available to students in the Basic Program vary from a minimum of 36 to a maximum of 56 credit hours in courses numbered 2000 and above, including prerequisites and corequisites (i.e., supporting courses in other departments or areas). Insofar as is consistent with the objective of a total program, the student may schedule courses accordingly between broad area requirements in the Triad, the major, and supplementary courses, the student may elect as many courses as desired in any department or area.

*See Phi Beta Kappa requirements in mathematics, page 38.
C. SUPPLEMENTARY ELECTIVE COURSES

At least one-fourth of each student’s curriculum in the Basic Program will be made up of courses selected according to the individual’s interests to supplement and support the work being done in the major and in the Triad. This dimension of the student’s experience in the University represents that freedom within which total education may be rounded out as 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 of study;
(2) A related minor;
(3) An area in the arts;
(4) An off-campus quarter.

Only the student’s imagination and initiative and the willingness to conceive and develop a totally meaningful academic program limit the choices of supplementary elective courses.

II. Individualized Program

The Basic Program described above will meet the educational needs of most of the students enrolling in the college. Some, however, come with particular strengths in their preparation or with special interests which do not coincide with the departmental or interdepartmental majors specified in the Basic Program. For these students the Individualized Program has been established as a means of attaining a closer correlation between student needs and academic programs.

Students in the Individualized Program will normally satisfy the broad requirements of the Triad, just as those in the Basic Program do, although some latitude is provided for substitutions approved by the faculty and the dean of the College. The point at which the greatest degree of individualization takes place, however, is in the area of concentration. Although the quantitative aspect of the area of concentration is the same as for the major in the Basic Program (i.e., a minimum of 36 hours in courses numbered above 2000), there is no restriction in principle on the choice of courses of which it is comprised. The student may design a program, in consultation with an adviser, and submit it for consideration to the Committee on the Individualized Program. The proposed courses of study must have some clear central purpose, usually implemented through intensive work in two or three departments. An undirected scattering of courses will not be approved. For further information consult the program director, Dr. Harry Jacobson (Ayres Hall).

III. College Scholars Program

A limited number of freshmen, entering transfer students with less than 60 credit hours, and resident students with less than 90 credit hours are invited each year to enter the College Scholars honors program. Selection is based on previous academic record, test scores, recommendations, a written essay, and a personal interview. Admission is provisional for two quarters; continuation depends upon maintenance of a satisfactory record (normally 3.25 or above) and evidence of ongoing motivation and interest.

The College Scholars Program affords the highest degree of freedom to the student in developing a meaningful curriculum. Each program is worked out individually with a specially assigned 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 resulting in a senior honors thesis or project report.

Further information and applications may be obtained from the program director, Dr. Harry C. Jacobson, 226 Ayres Hall.

IV. Preparation for the Health Professions

Pre-Dental
Pre-Dental Hygiene
Pre-Medical
Pre-Medical Record Accumulation
Pre-Medical Technology
Pre-Nursing
Pre-Pharmacy
Pre-Physical Therapy
Other Health Professions

Pre-health professional programs are available for students who plan a career in one of the health professions. The programs preparing students for the study of medicine, dentistry, and pharmacy include specified courses required for admission to the appropriate college of medicine, pharmacy, or dentistry.

The University of Tennessee College of Medicine in Memphis (UTHSC) is an alternative program in which the student is admitted to the College of Liberal Arts at The University of Tennessee, Knoxville. The pre-medical technology program prepares students to undertake professional training during the fourth year of study at UTHCS. Other pre-health professional programs—dental hygiene, medical record administration, nursing, pharmacy, and physical therapy—are offered for those students who are planning to pursue professional training in health professional areas which lead to an undergraduate degree at UTHCS but not to a degree from UT-K.*

NOTE: UTHCS is a state-supported institution and legislative intent is required to admit all qualified Tennessee residents prior to considering out-of-state applicants. At the present time there are more qualified Tennessee residents than there are places available; therefore, out-of-state applications are not being considered. The only exception to this policy is the non-resident applicant who is the son or daughter of an alumnus or alumna of UTHCS and who has completed all or part of his or her college work at a college in The University of Tennessee system and is otherwise qualified competitively.

Admission to any program at UTHCS or to the Medical Technology Program at the UT Memorial Research Center and Hospital is at the discretion of that program’s admissions committee.

Because the competition for admission to most programs in the health professions is keen, pre-health professional students are encouraged to work towards the completion of a degree program in a major which will enable the individual to adapt to an alternative program in the event admission to the desired program is not achieved. The preparatory courses necessary for professional study can be incorporated into the chosen major to save time.

Students in a pre-health professional program should consult with a health professional advisor in the Liberal Arts Advising Center (220 Ayres Hall) or the Coordinator of the Health Professions Office (218 Ayres Hall) for more information about the programs outlined below. Bulletins describing the various pre-health professional programs, including a detailed statement of requirements, may be obtained from the Health Professions Office, 218 Ayres Hall.

PRE-DENTAL PROGRAM

The College offers both three-year and four-year programs without the degree of Bachelor of Arts 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 135 credit hours while enrolled in the college, and the B.A. degree is granted upon satisfactory completion of the first year of study at UTHCS. In the four-year program the degree is granted upon completion of 180 or more credit hours while enrolled in the college, including a major of 36 or more hours as well as the courses listed below. The requirement for a major is waived for those completing their fourth year at UTHCS. Students in either the three- or four-year program must complete the last 45 hours of credit in residence at UTHCS.

* Students wishing to prepare for professional training at institutions other than UTHCS should consult the catalogs of those institutions to determine the specific preparation required for admission.
The University of Tennessee, Knoxville, before entering UTCHS. Although the B.A. degree is not required for admission to the College of Dentistry at Memphis, most of the students accepted into the study of dentistry have the baccalaureate degree before admission. Therefore, pre-dental students are encouraged to plan to complete all requirements for the B.A. degree before enrolling in the College of Dentistry.

Freshman  
Hours  Credit  
| English 1510-20 | 8  
| Chemistry 1120-23 | 12  
| Mathematics (1540) 1550-60 or | 8  
| 1840-50 | 8  
| Triad (Language, Literature & the Arts) | 12  
| Triad II (History and Society) | 12  

Sophomore  
| Biology 1210-20-30 or | 12  
| Zoology 1118-28-38 | 12  
| Chemistry 3211-21-31 and | 12  
| 3219-29-39 | 12  
| Triad I | 12  
| Triad II | 12  
| Elective | 4  

Junior  
| Physics 2210-20-30 | 12  
| Speech 2311 | 4  
| Biology and/or zoology | 12  
| Triad I | 12  
| Triad II | 12  
| Elective | 4  

Senior  
Completion of major program and B.A. requirements or Completion of one year at the UTCHS  
| Total: 180 hours |

Students interested in the pre-medical record administration program are encouraged to consult with a health professions advisor in the Liberal Arts Advising Center or the Coordinator of the Health Professions Office for more information. Bulletins describing the medical records administration requirements and program in detail may be obtained from the Health Professions Office, 218 Ayres Hall.

PRE-MEDICAL TECHNOLOGY PROGRAMS  
The College offers two programs leading to the study of medical technology.

1. The Science-Medical Technology Curriculum leading to a Bachelor of Arts degree with a major in medical technology from The University of Tennessee.

2. The Pre-Medical Technology Program leading to a degree of Bachelor of Science in medical technology from UTCHS.

Science-Medical Technology Curriculum  
The Science-Medical Technology Curriculum is a three-year program consisting of a minimum of 135 credit hours in the college. Students who complete this curriculum satisfactorily may apply for admission to the course of study in medical technology at The University of Tennessee Memorial Research Center and Hospital in Knoxville (UTMRCH). Successful completion of this course, which results in the granting of 50 credit hours, makes the student eligible for a Bachelor of Arts degree with a major in medical technology from The University of Tennessee. In addition, a Certificate of Laboratory Training will be awarded by UTMRCH. Students will then be eligible for examination by the Board of Registry of the American Society of Clinical Pathologists in order to be certified as registered medical technologists.

PRE-DENTAL HYGIENE PROGRAM  
A Bachelor of Science in Dental Hygiene is granted by UTCHS upon completion of a program which includes 96 hours of prescribed courses in the College of Liberal Arts and 6 quarters of study at UTCHS. Students interested in the pre-dental hygiene program are encouraged to consult with a health professions adviser in the Liberal Arts Advising Center or the Coordinator of the Health Professions Office for more information. Bulletins describing the pre-dental hygiene program and requirements in detail may be obtained from the Health Professions Office, 218 Ayres Hall.

PRE-MEDICAL PROGRAM  
The College offers both three-year and four-year programs leading to the degree of Bachelor of Arts for students preparing for the study of medicine. Both programs are based upon the program outlined below. In the three-year program the student must complete at least 135 credit hours while enrolled in the college, and the B.A. degree is granted upon satisfactory completion of the first year of study at the UTCHS. In the four-year program the degree is granted upon completion of 180 or more credit hours while enrolled in the college, including a major of 36 or more hours in addition to the courses outlined below. The requirements for a major are waived for those taking their fourth year at UTCHS. Students in either the three- or four-year program must complete the last 45 hours of credit in residence at UTK before entering UTCHS. Although the B.A. degree is not required for admission to the College of Medicine, most students accepted into the study of medicine have the baccalaureate degree before admission. Therefore, pre-medical students are encouraged to plan to complete all requirements for the degree before enrolling in the College of Medicine.

Freshman  
| Hours  Credit  
| English 1510-20 | 8  
| Chemistry 1120-23 | 12  
| Mathematics (1540) 1550-60 or | 8  
| 1840-50 | 8  
| Triad (Language, Literature & the Arts) | 12  
| Triad II (History and Society) | 12  

Sophomore  
| Biology 1210-20-30 or | 12  
| Zoology 1118-28-38 | 12  
| Chemistry 3211-21-31 and | 12  
| 3219-29-39 | 12  
| Triad I | 12  
| Triad II | 12  
| Elective | 4  

Junior  
| Physics 2210-20-30 | 12  
| Speech 2311 | 4  
| Biology and/or zoology | 12  
| Triad I | 12  
| Triad II | 12  
| Elective | 4  

Senior  
Completion of major program and B.A. requirements or Completion of one year at UTCHS. Bulletins describing the pre-medical program and requirements in detail may be obtained from the Health Professions Office, 218 Ayres Hall.

| Total: 180 hours |
Pre-Medical Technology Program

Students planning to seek admission to the medical technology course of study at UTCHS must complete 135 credit hours of prescribed courses while enrolled in the College of Liberal Arts. The program at Memphis is 12 months in length and leads to the degree of Bachelor of Science in Medical Technology from UTCHS. Classes are admitted in January and July and application must be made one year in advance.

Students interested in the medical technology program of study at UTCHS are encouraged to consult with a health professions adviser in the Liberal Arts Advising Center or the Coordinator of the Health Professions Office for the specific requirements for admission.

Bulletins describing both pre-medical technology programs and requirements in detail may be obtained from the Health Professions Office, 218 Ayres Hall.

PRE-NURSING PROGRAM

The minimum requirement for admission to the College of Nursing at UTCHS is 48 hours of prescribed courses in the College of Liberal Arts. The program in Memphis, which leads to the Bachelor of Science in Nursing from UTCHS, is three years in length.

Registered nurses who wish to work for a degree of Bachelor of Science in Nursing must complete 54 hours of prescribed courses to qualify for admission with advanced standing.

Students interested in the pre-nursing program are encouraged to consult with a health professions adviser in the Liberal Arts Advising Center or the Coordinator of the Health Professions Office for more information. Bulletins describing the pre-nursing program in detail may be obtained from the Health Professions Office, 218 Ayres Hall.

Note: A degree program in nursing is also available at The University of Tennessee, Knoxville. Information may be obtained from the dean of the College of Nursing.

PRE-PHARMACY PROGRAMS

The college offers three programs preparing students for the study of pharmacy at UTCHS. The Bachelor of Science in Pharmacy degree is conferred by UTCHS upon completion of three years of professional study at Memphis following any of the three programs.

The two-year program prepares students to be admitted to the College of Pharmacy upon completion of 90 hours of a prescribed course of study in the College of Liberal Arts. Further information may be obtained from the Health Professions Office, 218 Ayres Hall.

The three-year and four-year programs, which lead to a Bachelor of Arts degree from The University of Tennessee, Knoxville, as well as to the professional degree in pharmacy from UTCHS, are based upon the program outlined below.

In the three-year program, the student must complete at least 135 credit hours while enrolled in the College of Liberal Arts, and the B.A. degree is granted upon satisfactory completion of the first year of study at Memphis. In the four-year program the degree is granted upon completion of 180 or more credit hours while enrolled in the college, including a major of 36 or more hours in addition to the courses outlined below. The requirement for a major is waived for those taking their fourth year at UTCHS.

Students in either the three- or four-year program must complete the last 45 hours of credit in residence at The University of Tennessee, Knoxville, before enrolling in the College of Pharmacy.

Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1510-20</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Mathematics 1550-60 or 1840-50</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Psychology 2500</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Triad I (Language, Literature &amp; the Arts)</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Triad II (History, Social Studies)</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
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</table>

Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology 1210-20-30 or Zoology 1118-68-36</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Chemistry 3211-3212-3213 or 3219-29-39</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Speech 2311</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Triad I</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Triad II</td>
<td></td>
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<td>Elective</td>
<td></td>
<td>12</td>
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<td></td>
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Junior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting 2110</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Physics 2210-20</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Triad I</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Triad II</td>
<td></td>
<td>8</td>
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<tr>
<td>Electives</td>
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<tr>
<td></td>
<td></td>
<td>39</td>
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Senior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completion of major program and B.A. requirements</td>
<td></td>
<td>45</td>
</tr>
<tr>
<td>Completion of one year at the UT Center for the Health Sciences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulletins describing the three pre-pharmacy programs in detail may be obtained from the Health Professions Office, 218 Ayres Hall.</td>
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<td></td>
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</tbody>
</table>

Bachelor of Fine Arts

The Bachelor of Fine Arts degree represents intensive study preparing the student for graduate programs and careers relating to art. A minimum of 180 credit hours are required for graduation. Although there are no specific concentrations within the major, guidelines for the following recommended programs are available in the departmental office: (1) communication design, (2) drawing, (3) painting, (4) oil, (5) watercolor, (6) printmaking, and (7) sculpture. Transfer students are advised that a minimum of 28 credit hours in studio courses and 8 upper-division credit hours in art history must be earned at The University of Tennessee, Knoxville. The Bachelor of Fine Arts degree and its major will be recorded as follows:

Bachelor of Fine Arts

Major: Studio Art

Core Curriculum:

The core curriculum is required of all B.F.A. candidates. It is designed to give a broad art background, in both studio and art history, at the earliest possible time. This background, during the freshman and sophomore years, gives a foundation upon which the student may build, and an opportunity to become acquainted with the various artistic disciplines. This gives each student the understanding to plan a better program during the remaining two years. Unless otherwise stated, the core program is nonsequential, but should be completed by the end of the first two years. Core courses are as follows:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art History</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Art 1810</td>
<td></td>
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</tr>
<tr>
<td>Art 1825</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Art 2715</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

A minimum of 10 hours in art history courses.

PRE-PHYSICAL THERAPY PROGRAM

Admission to the physical therapy program at UTCHS, leading to the degree of Bachelor of Science in Physical Therapy from UTCHS, requires completion of 135 hours of prescribed courses while enrolled in the College of Liberal Arts. The program in Memphis is 15 months in length.

Students interested in the pre-physical therapy program are encouraged to consult with a health professions adviser in the Liberal Arts Advising Center or the Coordinator of the Health Professions Office for more information. Bulletins describing the pre-physics therapy program in detail may be obtained from the Health Professions Office, 218 Ayres Hall.
instruction, and admittance is based on the following criteria:

A. Grade-point average of 3.2 in studio art courses

B. Portfolio of class and/or outside work

C. Recommendation of the studio faculty, and/or approval of the instructor

Continued participation is subject to periodic review by the faculty. Students qualified for honors courses will enroll in course numbers which most closely parallel their present level, i.e. sophomores in 2008, juniors in 2008, seniors in 2008. Each course number may be repeated for a maximum of 24 hours credit.

**Bachelor of Music**

The Department of Music offers the degree of Bachelor of Music with concentrations in music theory, composition, music history and literature, piano literature, and applied music (voice—piano—organ—organ and church music—strings—woodwind, brass and percussion instruments—woodwind instruments—piano music and jazz). The study is designed to prepare students for graduate study or for positions in music for which a professional degree is required.

Students who plan to work for this degree are assigned an advisor in the Department of Music at the time they enter the program. Continuation in the program at the 300 level requires the achievement of an average of 2.5 or better in all music courses taken. The minimum requirement for the degree is 180 credit hours, including the specified courses outlined below.

**Note:** In addition to the concentrations offered in the Bachelor of Music curriculum, a major in music with a concentration in either music history and literature or applied music is available in the Bachelor of Arts curriculum.

**MUSIC THEORY**

**Freshman**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>English 1510-20</td>
<td>8</td>
</tr>
<tr>
<td>Music 1119-28-38</td>
<td>12</td>
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<tr>
<td>Music 1113-23-33</td>
<td>3</td>
</tr>
<tr>
<td>Music 1340</td>
<td>3</td>
</tr>
<tr>
<td>Applied music</td>
<td>3</td>
</tr>
<tr>
<td>Ensemble</td>
<td>3</td>
</tr>
<tr>
<td>Liberal arts electives</td>
<td>12</td>
</tr>
<tr>
<td>Music 2000</td>
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</table>

**Sophomore**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music 2119-28-38</td>
<td>12</td>
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<tr>
<td>Music 2113-23-33</td>
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<tr>
<td>Music 2310-20-30</td>
<td>3</td>
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<tr>
<td>Music 2599</td>
<td>6</td>
</tr>
<tr>
<td>Applied music</td>
<td>3</td>
</tr>
<tr>
<td>Ensemble</td>
<td>3</td>
</tr>
<tr>
<td>Liberal arts electives</td>
<td>12</td>
</tr>
<tr>
<td>Music 2000</td>
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**Junior**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
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<tr>
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<td>Music 3112-22</td>
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</tr>
<tr>
<td>Music 3113-23</td>
<td>6</td>
</tr>
<tr>
<td>Music 4121 or 4141</td>
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<tr>
<td>Ensemble</td>
<td>3</td>
</tr>
<tr>
<td>Music history/literature (3000-level and above)</td>
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<tr>
<td>Electives</td>
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<tr>
<td>Music 2000</td>
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**Senior**

<table>
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<tr>
<th>Course</th>
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<tr>
<td>Music 4111</td>
<td>3</td>
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<tr>
<td>Music 4121 or 4115</td>
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</tr>
<tr>
<td>Music 4121 or 4141</td>
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<tr>
<td>Music 4131</td>
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<td>Applied music</td>
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<tr>
<td>Ensemble</td>
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</tr>
<tr>
<td>Music electives</td>
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</tr>
<tr>
<td>Music 3199</td>
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<tr>
<td>Liberal arts electives</td>
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</tr>
<tr>
<td>Electives</td>
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<td>Music 2000</td>
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**COMPOSITION**

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<tbody>
<tr>
<td>Freshman</td>
<td>8</td>
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<tr>
<td>Music 1119-28-38</td>
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<tr>
<td>Music 1113-23-33</td>
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<tr>
<td>Music 1340</td>
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<tr>
<td>Applied music</td>
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<td>Ensemble</td>
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<td>Liberal arts electives</td>
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</tr>
<tr>
<td>Music 2000</td>
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**Sophomore**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Music 2119-28-38</td>
<td>12</td>
</tr>
<tr>
<td>Music 2113-23-33</td>
<td>3</td>
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<tr>
<td>Music 2310-20-30</td>
<td>3</td>
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<tr>
<td>Music 2599</td>
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</tr>
<tr>
<td>Applied music</td>
<td>3</td>
</tr>
<tr>
<td>Ensemble</td>
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</tr>
<tr>
<td>Liberal arts electives</td>
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<tr>
<td>Music 2000</td>
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**Junior**

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Music 2340</td>
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<tr>
<td>Music 2119-21-31</td>
<td>9</td>
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<tr>
<td>Music 3112-22</td>
<td>6</td>
</tr>
<tr>
<td>Music 3113-23</td>
<td>6</td>
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<tr>
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<td>3</td>
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<td>Music 3599</td>
<td>3</td>
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<tr>
<td>Ensemble</td>
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</tr>
<tr>
<td>Electives</td>
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<td>Music 3199</td>
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<td>Music 2000</td>
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**Senior**

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<tr>
<th>Course</th>
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<tr>
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<td>Music 4141</td>
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<td>Music 4599</td>
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<td>Ensemble</td>
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<td>Electives</td>
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</table>

**MUSIC HISTORICAL LITERATURE**

<table>
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<tbody>
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<tr>
<td>Music 1340</td>
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<td>Physics 1810</td>
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<tr>
<td>Foreign language or German</td>
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**Sophomore**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Music 2119-21-31</td>
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<td>Music 2113-23-33</td>
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<tr>
<td>Music 2310-20-30</td>
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<tr>
<td>Applied music</td>
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<td>Ensemble</td>
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<tr>
<td>Art 1815-25</td>
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<tr>
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<tr>
<td>Music 2000</td>
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</table>
### Junior

| Music 2340 | 3 |
| Music 3112 | 3 |
| Music 313-23 | 3 |
| Music 4265 | 3 |

### Sophomore

| Music 2111-21-31 | 9 |
| Music 2113-23-33 | 9 |
| Music 2310-23-33 | 9 |
| Music 2310-20-30 | 9 |
| Principal applied study | 12 |
| Ensemble | 12 |
| Liberal arts electives | 12 |
| Music 2000 | 0 |

### Senior

| Music 2340 | 3 |
| Music 3949-29-69 | 6 |
| Music 3113-23 | 3 |
| Music 3699 | 3 |
| Junior recital | 3 |
| Music electives | 6 |
| Liberal arts electives | 6 |
| Music 2000 | 0 |

### Hours Credit

| 180 Total |

### PIANO LITERATURE

#### Freshman

| English 1510-20 | 6 |
| Music 3113-23 | 3 |
| Music 2111-21-31 | 3 |
| Music 2113-23-33 | 3 |
| Music 1340 | 3 |
| Principal applied study | 3 |
| Music 3699 | 3 |

### Senior

| Music 2111-21-31 | 9 |
| Music 2113-23-33 | 9 |
| Music 2310-23-33 | 9 |
| Music 2310-20-30 | 9 |
| Principal applied study | 12 |
| Music 1015-20-30 | 3 |
| Music 2005-65-75 | 3 |
| Ensemble | 3 |
| Music 2000 | 0 |

### Total: 180 hours

### VOICE

#### Freshman

| English 1510-20 | 8 |
| Music 1111-21-31 | 9 |
| Music 1113-23-33 | 3 |
| Music 1340 | 3 |
| Principal applied study | 12 |
| Music 1015-20-30 | 3 |
| Music 2005-65-75 | 3 |
| Ensemble | 3 |
| Music 2000 | 0 |

### Total: 180 hours

### ORGAN AND CHURCH MUSIC

#### Freshman

| English 1510-20 | 8 |
| Music 1111-21-31 | 9 |
| Music 1113-23-33 | 3 |
| Music 1340 | 3 |
| Principal applied study | 9 |
| Ensemble | 3 |
| Liberal arts electives | 12 |
| Music 2000 | 0 |

### Total: 180 hours

### PIANO

#### Freshman

| English 1510-20 | 8 |
| Music 3113-23 | 3 |
| Music 2111-21-31 | 3 |
| Music 2113-23-33 | 3 |
| Music 1340 | 3 |
| Principal applied study | 3 |
| Music 3699 | 3 |

### Junior

| Music 2340 | 3 |
| Music 3113-23 | 6 |
| Music 2000 | 0 |

### Total: 180 hours

### Foreign Language

| French, Italian, or German | 8 |

### Music 2121 | 4 |

### Electives | 9 |

### Junior

| Music 2340 | 3 |
| Music 3113-23 | 6 |
| Music 2121 | 4 |
| Music 2000 | 0 |

### Total: 180 hours

### Senior

| Music 3012-22-32 | 6 |
| Music 4012-22-32 | 6 |
| Music 1113-23 | 9 |
| Senior recital | 9 |
| Foreign language (French, Italian, or German) | 6 |
| Electives | 6 |
| Music 2000 | 0 |

### Total: 180 hours

### Total: 180 hours

### Senior

| Music 4069 | 3 |
| Music 4041-51-61 | 9 |
| Music 3012-22-32 | 6 |
| Music 3113-23 | 6 |
| Music 2005-65-75 | 3 |
| Music 4012-22-32 | 6 |
| Music 1113-23 | 9 |
| Senior recital | 9 |
| Electives | 9 |
| Liberal arts electives | 9 |
| Music 2000 | 0 |

### Total: 180 hours

### Senior

| Music 4069 | 3 |
| Music 4041-51-61 | 9 |
| Music 3012-22-32 | 6 |
| Music 3113-23 | 6 |
| Music 2005-65-75 | 3 |
| Music 4012-22-32 | 6 |
| Music 1113-23 | 9 |
| Senior recital | 9 |
| Electives | 9 |
| Liberal arts electives | 9 |
| Music 2000 | 0 |

### Total: 180 hours

### TOTAL: 180 hours
MULTIPLE WOODWIND INSTRUMENTS

**Freshman**
- English 1510-20
- Music 1111-21-31
- Music 1113-23-33
- Music 1340
- Principal applied study
- Ensemble
- Liberal arts electives
- Music 2000

**Sophomore**
- Music 2111-21-31
- Music 2113-23-33
- Music 2310-20-30
- Principal applied study
- Music 1040-50-60
- Ensemble
- Liberal arts electives
- Music 2000

**Junior**
- Music 2340
- Music 3112
- Music 3113-23
- Principal applied study
- Ensemble
- Senior recital
- Music electives
- Liberal arts electives
- Electives
- Music 2000

**Senior**
- Music Education 4430
- Principal applied study
- Applied area literature
- Collateral applied study
- Ensemble
- Senior recital
- Music electives
- Liberal arts electives
- Electives
- Music 2000

**STUDIO MUSIC AND JAZZ**

**Freshman**
- English 1010-20; 1031 or 1032 or 1033
- Music 1111-21-31
- Music 1113-23-33
- Music 1340
- Music 4270
- Music 1400
- Music 2810
- Music 1010-60
- Principal applied study
- Ensemble
- Liberal arts electives
- Music 2000

**Sophomore**
- Music 2111-21-31
- Music 2113-23-33
- Music 2310-20-30
- Music 3052-53
- Music 2820
- Music 1030-60
- Principal applied study
- Ensemble
- Liberal arts electives
- Music 2000

**Junior**
- Music 2340
- Music 3112
- Music 3113-23
- Music 4114
- Music 4850
- Principal applied study
- Ensemble
- Senior recital
- Liberal arts electives
- Electives
- Music 2000

**Senior**
- Music Education 4430
- Principal applied study
- Applied area literature
- Collateral applied study
- Ensemble
- Senior recital
- Music electives
- Liberal arts electives
- Electives
- Music 2000

**TOTAL: 180 hours**

**BACHELOR OF SCIENCE IN CHEMISTRY**

Students who desire to major in chemistry may select either the curriculum leading to the degree of Bachelor of Arts or that leading to the degree of Bachelor of Science in Chemistry. This latter program is approved by the American Chemical Society and is designed to train students to go directly into positions in the chemical industry or to enter graduate study leading to positions in research and college teaching. 

A minimum average of C must be made on all chemistry courses applied toward the Bachelor of Science in Chemistry degree.

**COOPERATIVE PROGRAM IN CHEMISTRY**

A cooperative program is available to students in the B.S. in Chemistry curriculum. After the freshman year the student alternates a quarter in school with a quarter in a job in a chemical industry. The program normally requires five years and involves a total of seven work quarters and twelve school quarters. Students are required to have at least a 2.5 average to enter and remain in the program. Some opportunity exists for students to enter the program later than the end of the freshman year. Students interested should make application to the head of the department at least one quarter in advance of the beginning of the first work period. Further information will be supplied on request.

**CURRICULUM REQUIREMENTS**

**Freshman**
- Chemistry 1110-20-30
- **1118-28-38**
- Mathematics 1840-50-60 or 1848-56-68
- Language, Literature, Art Triad
- **Writing proficiency**
- Language, Literature, Art Triad (foreign language Option I or II)
- History and Society Triad
- **12**

**Sophomore**
- Chemistry 3211-21-31
- Chemistry 3219-29-39 or 3219
- Mathematics 2840-50-60 or 2848-56-68
- Physics 2510, 2510-20
- Language, Literature, Arts Triad (foreign language Option I or II)
- History and Society Triad
- **9**
Preparation for Other Professions

Law
Students who plan to study law should consult the statement regarding admission to the College of Law (page 173) and discuss their programs with advisers in the Liberal Arts Advising Center.

Library Science
Certain courses in the Graduate School of Library and Information Science are open to students in the College of Liberal Arts interested in beginning positions in a library or in preparation for future graduate study in library science. For further information, see page 51 or consult the Director of the Graduate School of Library and Information Science.

Planning
Students who wish to consider a career in city and regional planning or a related field will find a brief description of the program of the Graduate School of Planning on page 52. Students are accepted in the 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.

Public Administration
Students majoring in political science who wish to prepare for an administrative career in the public service may select courses to fit that objective. The concentration appearing below is suggested for students with public service career interests. The degree to be awarded is a Bachelor of Arts with a major in political science, augmented by supportive work in related disciplines.

Freshman
- Political Science 2510-20, 2530 (choose 8 hours) 8

Sophomore
- Political Science 2110-20-30 4
- Economics 2110-20-30 4

Junior
- Political Science 3565-66 6
- Economics 3410 3
- Accounting 2110-20-30 3

Senior
- Political Science 4610-20 7
- Political Science 4410 4
- Accounting 3510 3
- Finance 4530-60 6

In addition, sufficient electives in political science must be taken to meet the number of hours required for a major in political science. Further information may be obtained in the Department of Political Science.

Social Work
Students who wish to prepare for graduate professional training in social work will find a brief description of the program of the School of Social Work on page 53. Detailed information about courses and curricula, including requirements for admission, will be found in the catalog of the School of Social Work.

Teaching
Students in the College of Liberal Arts who wish to be certified for secondary school teaching must satisfy state certification requirements as well as all degree requirements of the College of 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 thirty states.

Application for admission to the Teacher Education Program should be made during the second or third quarter of the sophomore year in the office of the dean of the College of Education, 212 Claxton Education Building. Criteria for admission are: (1) a 2.2 cumulative grade point average; (2) satisfactory ratings in a speech and hearing exam as determined by tests administered by the Speech and Hearing Center; (3) a personality inventory; (4) satisfactory student conduct records; (5) a successful field experience.

One quarter during the senior year must be reserved for student teaching (Education C2 4710-20). Application for student teaching must be filed not later than January 1 of the year preceding the academic year in which the student teaching will be undertaken. Those planning to student teach during the 1980-81 academic year must apply by January 1, 1980.

Curricula for students seeking teacher certification should include the following:
1) English 1010-20; 1031 or 1032 or 1033
2) 16 hours, representing at least 3 fields, including:

(a) 4 hours of 2000-level English
(b) 12 hours of the student's choice from anthropology, art, English literature, Library and Information Science 3510-20-30, foreign language (beyond the elementary level), history (upper division), music, philosophy, or religious studies
(c) Language, Literature, and the Arts: 0-24 hours, the number of hours and choice of courses depending upon the options selected and the choices made in (2) above
(d) History and Society: (a) One of the 8-hour historical sequences in category (a) of the Triad list
(b) Psychology 2500 or 2518
(c) 4 hours from anthropology, economics, geography, human services, political science or sociology courses on the Triad list
(d) 0-8 additional hours of the student's choice from courses on the Triad list
(e) Speech 2311
(f) 9 hours in health and physical education, including at least 3 hours of skill courses, public health, nutrition and 2 hours of physical education
(g) Professional Education courses:
(a) Education C2 3010-20-30
(b) Educational Psychology 3810
(c) 6 hours of appropriate methods courses
(d) Education C2 3521-22-23
(e) Education C2 4710-20 (student teaching)
(f) 6 hours of electives from the College of Education

NOTE: The same course may be applied both to certification requirements and to Triad requirements or major requirements of the College of Liberal Arts.

*Admission to the Teacher Education Program is prerequisite for upper-division courses in professional education

Theology
Students planning to study theology should follow one of the Bachelor of Arts curricula. Any liberal arts major is acceptable for admission to most theological schools; strong preparation in literature, philosophy, history, religious
General Information
Admission to the College
For information regarding admission to the College of Liberal Arts, see page 17.

Course Load
The average course load in the college for any quarter is 14-16 credit hours. The University defines full-time undergraduate students as those who register for a minimum of 12 hours. The maximum number of hours which may be taken by liberal arts students is 17, exclusive of elective work in ensemble music and physical education. Exceptions to this rule will require approval by the Assistant Dean for Student Academic Affairs (218 Ayres Hall).

Lower Division—Upper Division
Courses numbered at the 1000 and 2000 levels are considered lower division and are normally taken by students in the freshman and sophomore years. Courses numbered 3000 and above are upper division and are designed for students at the junior and senior levels.

Satisfactory/No Credit Courses
A few courses in the college are offered only on a Satisfactory/No Credit (S/NC) basis and students may elect to take others on this basis, except in areas where the option is specifically prohibited. Such courses, if successfully completed, will count as hours for graduation although neither S nor NC grades will be calculated in the student's grade point average. Satisfactory is defined as C or better work on the traditional grading scale and No Credit is defined as less than C. The following regulations apply:

1. S/NC courses, except those offered only on this basis, may not count for Triad requirements or major and minor requirements unless specifically permitted by petition. This restriction applies also to major or minor prerequisites or corequisites.
2. The maximum number of S/NC elective hours which may be counted toward graduation is 30, exclusive of courses offered only S/NC, physical education courses and/or satisfactory hours earned by examination, military service, etc.
3. A student who desires to take a course S/NC should indicate that intention at the time of registration. A change from S/NC grading to regular grading or from regular grading to S/NC will not be permitted beyond the add deadline in each quarter. (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.)
4. A transfer student who has more than 30 S/NC or equivalent hours earned prior to admission to The University of Tennessee, Knoxville, may count all of these hours toward graduation but may not elect additional S/NC hours.
5. A transfer student with S/NC or equivalent credit earned prior to admission to The University of Tennessee, Knoxville, in a course which satisfies a Triad requirement may count it for that purpose. In the case of a course which satisfies a major or minor requirement, statement (1) applies. The option of taking courses on a S/NC basis is provided to encourage the able student to venture beyond the limits of those courses in which the student does well and, motivated by intellectual curiosity, to explore subject matter in which performance may be somewhat less outstanding than work in preferred subject fields.

Note: Students planning to seek admission to graduate or professional schools (especially in the health sciences) should discuss with their advisers possible limits 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 involvement, working in political campaigns, etc. Credit per quarter will vary from 1-16 hours. Up to 24 hours of credit earned in this way may be applied toward a degree in the college, although individual departments may limit the number of hours which may be applied toward a specific major.

Independent Study
Certain educational goals may best be met through independent study done by an individual under the direction of a faculty member. Students who wish to do such independent work should obtain the approval of the faculty members and the departments concerned prior to embarking upon their study. Credit per quarter will vary from 1-16 hours. Up to 24 hours of credit earned in this way may be applied toward a degree in the college, although individual departments may limit the number of hours which may be applied toward a specific major.

Study Abroad and Foreign Study Courses
Several opportunities for study abroad are available to students in the college. One avenue is through group programs arranged and supervised by departments of the college on a full-quarter or summer term basis. A second is through group programs conducted abroad by other academic institutions to which UTK students with approval may enroll for credit. Assistance in identification of and registration in such programs may be obtained through the Overseas Study Information Service located in the University's Division of International Education. A third opportunity is through individualized programs under the foreign study number 4101. The nature of this work as well as credit for it should be negotiated by students in order to depart with the appropriate liberal arts departments. Credit will be awarded only after completion of all agreed upon requirements, and may vary from 1-16 hours in any one department. Up to 24 hours of such credit, exclusive of that earned in group programs offered by departments, could apply toward a degree in the college. Departments may in any of the above forms, however, limit the hours of credit which can be applied toward a given major.

Liberal Arts Advising Center
Academic advising for students of the college is offered through the Liberal Arts Advising Center, 220 Ayres Hall, as well as through the several major departments.

The Advising Center staffs a regularly scheduled basis by members of the college faculty, each of whom has been trained for this specialized work. Students in their first quarter of residence are assigned to the Advising Center; where they may relate themselves to a particular adviser of their choice or consult the person on duty at the time they need assistance. Most students continue in this relationship to the Advising Center until they have determined their major, normally by the beginning of the junior year, at which time they may be transferred for advising to a faculty member in the major department.

Student Academic Affairs Office
Academic assistance for students is also provided through the Student Academic Affairs Office, 218 Ayres Hall. This office serves primarily those students not assigned to the Liberal Arts Advising Center, helping them meet a variety of academic needs related to the development of their academic programs, satisfying graduation requirements, etc. For those who are planning careers in the health sciences it provides a liaison with the Center for the Health Professions. Each quarter the Student Academic Affairs Office issues the Liberal Arts Quarterly Bulletin in order to keep students informed about changes in the college curriculum as well as matters relating to registration, courses, and requirements.

Office of Black Studies
The Office of Black Studies, 812 Volunteer Blvd., coordinates the various departments and colleges of the University with respect to the development of curricular changes and innovations which incorporate the Black experience into academic and advising programs of the institution, supplies information on financial assistance for Black students, and serves as the focal point for the coordination and development of an improved and expanded Black Studies Program at the University.
Black Cultural Center

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

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

Bureau of Public Administration

The University has established in the college a Bureau of Public Administration, for the purpose of, and promoting sound governmental administration through research, publication, and consultation. Offices and staff are maintained in both Knoxville and Nashville. The head of the Department of Political Science serves as director of the Bureau of Public Administration.

Psychological Clinic

The Psychological Clinic is an outpatient psychodiagnostic and treatment center established by the University within the Department of Psychology. It provides advanced graduate training for students in clinical psychology and also serves as a training facility for graduate students in the School of Social Work. Referrals for treatment come from many sources, including self-referrals and referrals by relatives and friends and by various social and mental health agencies. Treatment services are available to anyone regardless of residence, sex, age, race, or citizenship.

University Theatres

The Department of Speech and Theatre offers a full schedule of dramatic presentations in three different theatres. The Clarence Brown Theatre has outstanding facilities for prosenium and open staging and for film productions, and, in a separate Studio Theatre, for laboratory productions. Carousel Theatre is designed for arena staging, and can be converted for open-air performances in the summer.

Instructional Facilities

The college carries out its varied teaching and research activities in more than two dozen principal buildings in two areas of the campus, as well as in a number of converted residences which provide office, studio, or laboratory space. The library of the two clusters of buildings is on "The Hill," and includes Ayres Hall (psychology and mathematics), Austin Peay (psychology), Hesler (biological sciences), Physics (physics and astronomy), Geology-Geography (geology and geography), and Babey and Buehler (chemistry). West of "The Hill" is a recently built group of buildings for the humanities, social sciences, and fine arts: McClung Tower and the Humanities-Social Sciences classroom building (classics, English, foreign languages, history, human services, philosophy, fine arts, religious studies, sociology, and speech and theatre), the Music Building (music), and the Hearing and Speech Center (audiology and speech pathology). In this area also are the McClung Museum and the Clarence Brown and Carousel Theatres, as well as the Undergraduate Library. Anthropology is housed in South Stadium, and art utilizes several small buildings for its studies.

College Offices

The College Administrative Office is in 226 Ayres Hall and houses the office of the Dean, Associate Dean as well as the office of Curriculum and Special Programs. The Student Academic Affairs Office is in 218 Ayres Hall. The Liberal Arts Advising Center is in 220 Ayres Hall.

Departments of Instruction

American Studies

See Cultural Studies.

Ancient Mediterranean Civilizations

See Cultural Studies.

Anthropology (122)

Professors:

W. M. Ben (Head), Ph.D. Pennsylvania; C. H. Faulkner, Ph.D. Indiana; A. K. Guthe, Ph. D. Michigan; P. W. Parmalee, Ph.D. Texas A&M.

Associate Professors:

I. Harrison, Ph.D. Syracuse; R. L. Jantz, Ph.D. Kansas.

Assistant Professors:


Research Assistant Professor:


*Visiting.

UNDERGRADUATE

A major in anthropology shall consist of 39 hours, 12 of which are to be in the introductory 2000-level courses. Of the remaining 27 hours, 4400 and six hours of 3000 level or above courses are required in each of these subfields: (a) Cultural; (b) Physical; and (c) Archaeology.

(a) Cultural: 3410, 3440, 3450, 3510, 3530, 3540, 3710, 3800, 4111, 4200, 4210, 4240, 4250, 4259, 4400, 4420, 4430, 4440, 4500, 4510, 4550, 4570, 4590, 4740.

(b) Physical: 3070, 3900, 3920, 3930, 4930, 4950, 4960, 4970.

(c) Archaeology: 3610, 3620, 3630, 3640, 3660, 4400, 4500, 4600, 4610, 4640, 4650.

A minor in anthropology consists of 27 hours including the 2510, 2520, 2530 introductory courses.

2510 Human Origins (4) Non-technical survey of man's primate background, fossil primates, fossil man, and living races of mankind.

2520 Prehistoric Archaeology (4) Survey of prehistoric cultures with special emphasis on world history and theory in archaeology; prehistory of western Europe and Africa; archaeology in Americas.

2530 Human Culture (4) Introduction to ethnology: survey of nature of culture and society and similarities and differences in man's material culture, social, economic, and political organizations, his ideology, art, and language.

2540 Introduction of Linguistic Anthropology (4) Basic linguistic concepts. Aspects of language studied by anthropologists and sociolinguists.

3070 Genetics and Society (3) (Same as Botany 3070.)

3333 Visiting Lecture Program (3) Developed around lectures by visiting scholars in physical anthropology, cultural anthropology, and archaeology. Offered fall quarter with subdivisions repeated on rotating basis. May be repeated. Maximum one year.

3410 Principles of Cultural Anthropology (3) Basic concepts and objectives in study of culture. Range of cultural phenomena and approaches to its study. 2530 recommended.

3440 Religion of Primitive Peoples (3) Religions of non-literate peoples, social basis of religious expression in their social and cultural systems. 2530 recommended. (Same as Religious Studies 3440.)

3450 Community Studies in Complex Culture (3) Review of cross-cultural comparative urban and village communities and methodologies used in community studies. 2530 recommended.

3490 African Religions (4) (Same as Religious Studies 3490 and Black Studies 3490.)

3510 Peoples and Cultures of mainland Asia (3) Ethnographic survey of indigenous cultures of mainland Asia. Cultural diversity and human ecology in a real perspective. 2530 recommended.

3530 Peoples and Cultures of Africa (3) Ethnographic survey of African peoples of sub-Saharan Africa. Cultural diversity and human ecology in a real perspective. 2530 recommended.

3540 North American Indians (3) Ethnographic survey of cultures of Arctic, Southwest, Plains and Eastern areas. Emphasis on cultural differences of peoples occupying these areas during pre-colonial period. 2530 recommended.


3550 Cherokee Ethno History (3) Survey of socio-political aspects of internal affairs and external relationships from first European contact to present. Emphasis on 18th and 19th centuries.

3575 Afro-American Anthropology (3) Anthropological perspectives on human cultures found in New World: examination of Afro-Americans via anthropological theories and methodology.

3580 Peoples and Cultures of Mesoamerica (3) Ethnographic survey of aboriginal peoples and prehistoric cultures of Central and Southern America. Emphasis upon analysis of small rural communities using modern village studies as source material. Prereq: 2530 recommended.

3610 Archaeology of United States and Canada (3) Survey of prehistoric peoples north of Mexico from initial occupation to European contact. 2530 recommended.
3620 European Prehistory I (3) Cultural developments during Paleolithic, Mesolithic, and Neolithic periods. 2520 recommended.
3630 European Prehistory II (3) Cultural developments during Metal Ages. From close of Neolithic through Iron Age. 2520 recommended. 3620 and 3630 should be taken in sequence.
3640 Ancient Civilization of Mesoamerica (3) Introduction to archaeological research in Mesoamerica and survey of prehistoric American Indian cultures identified through research.
3670 Principles of Archaeology (3) Research strategies in archaeological excavation, interpretation, and explanation. Prereq: 2520 or consent of instructor.
3700 Forms of Folklore (4) Introduction to anthropological study of folklore.
3710 European Folk Culture (3) Traditional aspects of life in technology, beliefs, and folklore, under changing historical and socioeconomic conditions.
3800 Language and Culture (3) Relationship between linguistic categories and patterns of culture. Prereq: 2540 or consent of instructor. Recommended: 2530.
3811 Introduction to Museology (3) (Same as Art 3811.)
3900 Human Osteology (4) Intensive examination of the human skeleton. Prereq: 2510 or consent of instructor. 3 hrs. and 1 lab.
3920 Principles of Physical Anthropology (3) Survey of materials and methods in physical anthropology. 2510 recommended.
3930 The Biology of Races of Man (3) Processes of racial differentiation; criteria of significant differences among existing stocks; influence of biology and culture in race formation; analysis of studies concerning blood groups, race mixture, constitution growth and nutrition. 2510 recommended.
3950 Human Identification (3) Introduction to techniques in identification of human skeletal material in forensic medicine. 1101 Foreign Study (1-16) See page 187.
4102 Off-Campus Study (1-16) See page 187.
4103 Independent Study (1-16) See page 187.
4110 Education in Cultural Perspectives (3) Same as Educational Curriculum and Instruction 1110.
4111 Non-Western Education: Anthropological Approaches (3) Analysis of traditional educational practices among non-western peoples and problems encountered from application of western models of education among those peoples. Particular attention is paid to American Indians, African tribal groups and Asian cultures.
4200 Contemporary North American Indians (3) Survey of Indian cultures from initial Euro-American contact to present; emphasis on culture changes brought about by S. American policy, reservation life. Prereq: 2520 or consent of instructor.
4210 Ethnographic Research Techniques (3) Methods of collecting, ordering, and utilizing data. Prereq: Consent of instructor.
4240 Applied Cultural Anthropology (3) Applications of anthropological methods and findings in programs of community and national development, public health, international aid, and military ventures. Prereq: 2520. Prerequisites of anthropologists, questions of values and ethics in intervention schemes, and of organization of planned change in applied programs. Intensive analysis of selected case studies. Prereq: 2530.
4250 Medical Anthropology: Lecture (3) Survey of medical anthropology. Emphasis on Western and non-Western cultural aspects of health, disease, treatment, death, and related concepts. Focus on analyses and descriptions of anthropological fieldwork.
4259 Medical Anthropology: Laboratory (3) Fieldwork in medical anthropology. Emphasis on cultural aspects of health, disease, and death in industrial societies and folk medicine systems which co-exist with Western, technical medicine. Coreq or prereq: 4250.
4300 Readings in Anthropology (1-9) Intensive reading, problem oriented. For anthropology majors with senior standing. Others by consent of instructor. May be repeated to maximum of 9 credit hrs.
4340 Field Work in Anthropology (3-9) Practicum work surveying, excavating, processing, and analyzing of data; intensive reading. Prereq: 2510-2530, and consent of instructor. May be repeated to a maximum of 9 credit hrs.
4400 Cultural Ecology (3) Survey of concepts and methods in analyzing the ecological interaction between cultures and their environments. Topics include ecological theory, methods of analysis, and application from selected case studies. Prereq: Anthropology 2520 or 2530, or 3410, or consent of instructor.
4420 Dynamics of Culture (3) Culture change: innovation, diffusion and acculturation; cultural continuity and stability. Prereq: 2530 or consent of instructor.
4440 Urban Anthropology (3) Survey of theoretical and methodological issues anthropologists encounter researching cross-cultural urban settle- ments. Focus is on anthropological perspective and urban problems and planning. Prereq: 3450 or consent of instructor.
4480 Current Trends in Anthropology (3) Analytical integrative review in symposium of current debates, research directions, theories, fieldwork methods, and general assumptions of the four subfields of anthropology: archaeology, physical anthropology, linguistics, and cultural anthropology. Required of anthropology majors in senior year. Prereq: Senior standing.
4490 Cross-Cultural Survey of Sex Roles and Behavior (3) Examination of sex roles and sex behavior from cross-cultural and diachronic view- points. Drawn from data in cross-cultural studies together and attempts to arrive at conclusions on questions such as how sex roles are learned, the parameters of sex role behavior and degrees of tolerance for sexual deviation in various cultures.
4510 Peoples of China II: Chinese Society after 1839 (3) Anthropological survey of Chinese society and culture in the period of intense Western contact, rejection of the West, and development of modern, communist Chinese society and culture. Prereq: 2530 or consent of instructor. Recommended: an East Asian course.
4550 Indians of the Southeastern United States (3) Survey of Southeastern Indian cultures; emphasis on aboriginal adjustment to environment; lifeways of Southeastern Amerind groups prior to Euro-American contact. Prereq: 2530, 3540 or consent of instructor.
4560 Cherokee Ethnology (3) Intensive survey of ideology and material aspects of Cherokee culture existing at time of first European contact.
4570 Peoples of Southeast Asia (3) Survey of rep- resentative cultures of indigenous cultures of mainland and island Southeast Asia. Problems of contemporary culture changes. Prereq: 2530, consent of instructor, or an East Asian course.
4580 Asians in the Americas since 1800: Anthropo- logical Perspectives (3) Character, factors, and major currents in Asian immigration to Central and South America. Assimilation pattern and en- clave communities are major topics. Major focus is on time of United States.
4590 Peoples of Japan (3) Analysis of cultural diver- sity and unity of peoples of Japan. Prereq: 2530 or consent of instructor. Recommended: 3510 or an East Asian course.
4600 Method and Theory in American Archaeology (3) Historical development of American archaeology with emphasis on theory and field techniques. Prereq: 2520 or consent of instructor.
4610 African Prehistory (3) Survey of cultural his- tory in Africa, folk traditions, economy, clearest evidence of human activity to time of European contact. Prereq: 2520 or consent of instructor.
4640 Zoaarchaeology (3) Basic osteological studies of vertebrate classes; emphasis on abo- riginal man's utilization of native animals in his subsistence and culture. Identification, analysis, and reconstruction of archaeologically derived mol- luscan and vertebrate remains.
4650 Archaeology of Southeastern United States (3) Intensive survey of prehistoric American Indian. Special emphasis on Tennessee prehistory. Prereq: 3610 or consent of instructor.
4720 American Folklore (3) Anthropological per- spectives on folklore of geographical regions and ethnic groups of the United States. Prereq: 3700 or consent of instructor.
4740 Southern Appalachian Folk Culture (4) Re- search-oriented course dealing with wide range of traditional culture in southern Appalachia: settle- ment, family, folk medicine, folklore, personal beliefs, speech, art, song, dance, and oral traditions and customs. Prereq: Consent of instructor. May be repeated for credit.
4750 Mexican Folklore (3) Anthropological per- spectives on folklore of Mexico and Spanish-speaking southwestern United States. Prereq: 3700 consent of instructor and a reading knowl- edge of Spanish.
4870 Cherokee Language (3) Linguistic survey of structure of the Cherokee language.
4930 Physical Growth and Constitution (3) Com- parative growth patterns throughout the life cycle of man, skeletal and sexual, developmental sex differ- ences in growth; human constitutional types. Prereq: 2510 or consent of instructor. Biology 2110 strongly recommended.
4950 Primate Studies (3) Study of field and lab- oratory investigations of comparative anatomy and non-human primate behavior. Prereq: 2510 or consent of instructor.
4960 Primate Paleontology (3) Survey of fossil pri- mate forms; origin and development of major primate lineages, emphasizing the earliest Hominid and related forms. Prereq: 2510. Recommended: Zoology 4380.
4975 Human Paleontology Laboratory (1) De- tailed examination of casts and other materials pertinent to study of human paleontology. Prereq or coreq: 4970.
GRADUATE
The general requirements for the master's and doctoral degrees are given in the Graduate Catalog.
5000 Thesis


PI BETA PHI ARROWMOUTH SCHOOL OF CRAFTS

Lecturers, summer 1978: C. Adams, D. Allegro of Liberal Arts, Department of Art appoints the instructors, and provides for the administration of craft classes with appropriate accreditation. In addition to providing advanced instruction in design and craft techniques taught by nationally known craftspersons, the craft workshops have expanded to a full-fledged program serving as a training center for artists and craftspersons from throughout the United States. Also, cooperation with national and local craft organizations has so stimulated the work of craftspersons throughout the area that their work has gained national recognition.

UNDERGRADUATE

B.A. Major: Art History—Consists of 36 hours in art history courses numbered 2000 and above. Courses numbered 2000 and above in the following areas may also be included in the 36 hours: Greek and Roman art and archaeology, aesthetics, history and theory of architecture (School of Architecture), and up to eight hours in studio courses in the Department of Art. Undergraduate work in art history is enhanced by a knowledge of at least one foreign language. Graduate work normally requires a reading knowledge of at least two foreign languages.

B.A. Major: Art (Concentration in Studio)—Art 1115-25-35 and Art 2715, and eight additional hours of art history are prerequisite to a major of 36 hours of courses numbered 2000 and above, including a minimum of 21 hours in upper-division courses.

Minor: None offered.

For information regarding the Bachelor of Fine Arts degree, see page 182.

1115-25-35 Studio Fundamentals (4, 4, 4) 1115—Beginning drawing; 1125—Surface composition and color; 1135—Real space and volume. For art, architecture, related arts and art education majors. Others with consent of instructor only.

1815-25 World Art (4, 4) A survey; 1815—prehistory to 1400; 1825—1400 to present.

2008 Honors: Art (4) Intensified study for the exceptional student. May be repeated for a maximum of 24 credit hrs.

2105 Intermediate Drawing (4) Prereq: 1115.

2106 Special Topics in Drawing (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hrs.

2115 Life Drawing (4) Prereq: 2105. May be repeated for a maximum of 8 credit hrs.


2205 Introduction to Painting (4) Oil, acrylic and watercolor. Prereq: 1115-25-35 for art majors.

2206 Special Topics in Painting (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hrs.

2215 Painting II (4) Oil and acrylic. Prereq: 2205. May be repeated for a maximum of 8 credit hrs.

2315 Watercolor II (4) Prereq: 2205. May be repeated for a maximum of 8 credit hrs.

2405 Introduction to Sculpture (4) Prereq: 1115-25-35 for art majors.

2406 Special Topics in Sculpture (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hrs.

2215 Painting II (4) Prereq: 2205. May be repeated for a maximum of 8 credit hrs.


2506 Special Topics in Communication Design (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hrs.

2515-25 Graphic Design (4, 4) 2515—Lettering and layout; 2525—Production. Prereq: 2505 for 2515; 2516 for 2525.

2516 Advertising Design (4) Fundamentals of lettering and layout for newspaper, magazine television, outdoor advertising. Non-art majors only.

2545-55-65 Photo-Graphics (4, 4, 4) Introduction to art of photography.

2605 Introduction to Printing (4) Relief, lithography, intaglio, and screen printing. Prereq: 1115-25-35 for art majors.

2606 Special Topics in Printing (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hrs.

2615 Intaglio II (4) May be repeated for a maximum of 8 credit hrs.

2616 Lithography II (4) May be repeated for a maximum of 8 credit hrs.
2617 Screen Printing II (4) May be repeated for a maximum of 8 credit hrs.

2715 Survey of Contemporary Art (4) 1945 to present.

2725 Black Art (4) Black artists in society. Emphasis on contemporary art forms.

2935 Film Design (4) Introductory theory and practice of film making. Emphasis on graphic elements through use of motion picture camera. May not receive credit for both 2916 and 2925.

3008 Honors: Intermediate Art (4) Intensified study for the exceptional student. May be repeated for a maximum of 24 credit hrs.

3115 Drawing III (4) May be repeated for a maximum of 12 hrs. Prereq: 2115.

3215 Painting III (4) May be repeated for a maximum of 12 hrs. Prereq: Consent of instructor.

3315 Watercolor III (4) May be repeated for a maximum of 12 hrs credit. Prereq: Consent of instructor.

3415 Sculpture III (4) May be repeated for a maximum of 12 hrs.

3515 Visual Communications I (4) Graphic design: theory and techniques of problem solving for the visual environment. Prereq: 2525.

3515 Typography (4) Theories and techniques of typography and printing as a fine art medium. May be repeated for a maximum of 12 hrs.

3517 Airbrush (4) Techniques and creative applications. May be repeated once for credit. For art majors only.

3525 Visual Communications II (4) Advanced pictorial perception, concepts, methods, and techniques for designer. Prereq: 2525.


3615 Intaglio III (4) May be repeated for a maximum of 12 hrs.

3616 Lithography III (4) May be repeated for a maximum of 12 hrs.

3617 Advanced Screen Printing (4) May be repeated for a maximum of 12 hrs.


3705 Northern European Painting: 1350-1600 (4) Painting and printmaking of the low countries, France, Germany, and England, includes international style manuscripts, Van Eyck, Bosch, Durer, Holbein, and Bruegel. 3715 Early Italian Renaissance Art: 1300-1500 (4) Painting, sculpture, and architecture. Includes Giotto, Masaccio, Donatello, Brunelleschi, Alberti, Botticelli, and Leonardo.

3716 Art in Southern Europe and New World in Sixteenth Century (4) Italy, Spain and Latin America, 1475-1600. Emphasis on Leonardo, Michelangelo, Michel's pupils, Peruzzi, Pontormo, Bellini, Giorgione, Titian, Tintoretto, Veronese, and artistic relations between Iberia and Latin America.

3725 Art of Southern Europe and New World in Seventeenth and Eighteenth Centuries (4) Emphasis on El Greco, Caravaggio, Zurbaran, Velazquez, Bernini, Tiepolo, Goya, artistic relations between Iberia and Latin America, and the urban development of Rome.

3726 Art of Northern Europe in Seventeenth and Eighteenth Centuries (4) Emphasis on Rembrandt, Vermeer, Hals, Rubens, Poussin, Callot, Georges de la Tour, Watteau, David, urban development of Paris and London, and pilgrimage churches of southern Germany.

3735 History of Nineteenth-Century Painting in Europe and America (4) Emphasis on France: Neo-classicism, Romanticism, Naturalism, Impressionism, Post-Impressionism; Germany: Turner, Corot and Barbizon landscapeists, Hudson River Group, Pre-Raphaelite Brotherhood, Manet, Courbet, Impressionism, Eakins, Homer, Seurat through Cezanne.

3736 History of Twentieth-Century Painting in Europe and America (4) Fauvism, Die Brucke, Cubism, Der Blaue Reiter, Futurism, Dada and Surrealism, geometric abstraction, social commentary, painting, Abstract Expressionism in the U.S.A. and parallels in Europe; Pop, Op, Minimal, and Concept Art.

3745 History of Modern Architecture in Europe and America (4) Survey of nineteenth-century styles, Sullivan and skyscraper, Twentieth century: Viennese leaders, the Bauhaus, Gropius, Van der Rohe, Le Corbusier, and Wright. Aalto to Kahn, Tange and Metabolism, Archigram, Solarii, and Venturi.

3746 History of Modern Sculpture in Europe and America (4) From 1800 to 1900: Neoclassicism to Rodin. From 1900 to present: emphasis on Cubism, Constructivism, Expressionism, Assemblage, Pop, Primary Forms, Environment, and Earthworks.

3755 History of North American Art (4) Survey of landmarks in painting, architecture, sculpture, and design from prehistory to 1900.

3765 History of Twentieth-Century American Art (4) Analysis of developments in architecture, painting, sculpture, and design from 1900.

3775 Nineteenth Century American Painting (4) From West and Copley to emergence of "The Eight."

3777 Art of Indian Asia (4) History of Indian art with consideration of art of Central Asia and Southeast Asia.

3778 Chinese Art (4)

3779 Japanese Art (4)

3811 Introduction to Museology (3) Concepts, practices and historical development of museums of art, archaeology, anthropopolgy and science. (Same as Anthropology 3811)

3935 Film Design (4) Theory and practice of film making. Prereq: 2935.

3945 Cinematography (4) Familiarization with photographic processes and basic production techniques; artistic potential of film, aesthetic problems and challenges of the medium. May be repeated for a maximum of 12 hrs.

4008 Honors: Advanced Art (4) Intensified study for the exceptional student. May be repeated for a maximum of 24 credit hrs.

4015 Individual Problems (4) May be repeated for a maximum of 12 hrs credit. Prereq: Consent of instructor.

4106 Special Topics in Drawing (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hrs.

4107 Foreign Study (1-16) See page 187.

4102 Off-Campus Study (1-16) See page 187.

4103 Independent Study (1-16) See page 187.

4115 Drawing IV (4) May be repeated for a maximum of 12 hrs. Prereq: 12 hrs of 3115.

4206 Special Topics in Painting (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hrs.

4215 Painting IV (4) May be repeated for a maximum of 12 hrs. Prereq: Consent of instructor.

4315 Watercolor IV (4) May be repeated for a maximum of 12 hrs. Prereq: Consent of instructor.

4406 Special Topics in Sculpture (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hrs.

4415 Sculpture IV (4) May be repeated for a maximum of 12 hrs.

4506 Special Topics in Communication Design (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hrs.


4545 Visual Communications Seminar (2) Political, social, economic, and moral problems of contemporary designer. Prereq: 4515.

4606 Special Topics in Printmaking (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hrs.

4615 Intaglio IV (4) May be repeated for a maximum of 12 hrs.

4616 Lithography IV (4) May be repeated for a maximum of 12 hrs.

4617 Advanced Screen Printing (4) May be repeated for a maximum of 12 hrs.

4855 Studies in Art History (2) Concentration in selected areas. Prereq: 16 hrs of art history and consent of instructor. May be repeated. Maximum credit 6 hrs.

GRADUATE

There are two advanced degrees available in this department: Master of Arts and Master of Fine Arts. In addition to meeting requirements of the Graduate School, applicant must have an undergraduate major in art or outstanding proficiency. Examples of work will be requested. For additional information regarding these programs, write to the head of the department.

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5011-21-31 Exhibition in Lieu of Thesis (3, 3, 3)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5115 Graduate Drawing I (2-6)

5155 Graduate Drawing II (2-6)

5215 Graduate Painting I (2-6)

5255 Graduate Painting I (2-6)

5315 Graduate Watercolor I (2-6)

5355 Graduate Watercolor II (2-6)

5415 Graduate Sculpture I (2-6)

5455 Graduate Sculpture II (2-6)

5515 Graduate Communication Design I (2-6)

5555 Graduate Communication Design II (2-6)

5615 Graduate Printmaking-Lithography I (2-6)

5616 Graduate Printmaking-Intaglio I (2-6)
Asian Studies  
See Cultural Studies.

Astronomy  
See Physics and Astronomy.

Audiology and Speech Pathology (160)  
Professors:  
H. L. Luper (Head); Ph.D. Ohio State; S. Adler, Ph.D. Ohio State;  
P. J. Carney, Ph.D. Iowa; D. M. Lipcomb, Ph.D. Washington;  
P. Scherer, Ph.D. Czech Technical (Prague); H. A. Peterson, Ph.D. Illinois;  
B. Silverstein, Ph.D. Purdue.  
Associate Professors:  
S. B. Burchfield, Ph.D. Michigan State;  
C. G. Malsek, M.Ed. Texas.  
Assistant Professor:  
T. O. Davidson, M.A. Tennessee.  
Instructors:  
J. S. Berry, M.S. Tennessee; S. C. Goss, M.A. Wayne State; K. Hinkle, M.A. Tennessee;  
J. E. Ireland, M.C.D. Mississippi; N. Nabors, M.A. Tennessee; A. K. Sampson, M.A. Tennessee;  
T. R. Singletary, M.S. Colorado State.  
UNDERGRADUATE  
General Information. One of society's most significant developments has been the acquisition of organized systems of communication. Basic to most human language systems has been dyadic oral-aural communication. The Department of Audiology and Speech Pathology offers courses in the scientific study of oral-aural communication with special attention to variations considered normal or abnormal. Many of the courses offered in the department cover information that should be valuable to students planning to enter any social service discipline. Suggested electives for nondepartmental majors include: 3010, 3040, 3050, 3710, 4070, 4720, and 4750.  
MAJORS. The two majors (audiology and speech pathology) within the department are preprofessional; that is, they are preparatory to graduate work and to professional certification in some aspect of communicative disorders. The master's degree is required for most professional certifications and employment positions. Within the broad coverage of audiology, it is possible for a student to specialize in a limited extent by choosing elective courses which emphasize traditional diagnostic audiology or oral-aural habilitation-rehabilitation. Students in speech pathology may specialize to a limited extent by choosing elective courses which emphasize speech disorders, language disorders, or cultural language differences. Students desiring school certification in speech and hearing education of the deaf should consult the Department of Special Education and Rehabilitation for specific requirements. A major in speech pathology consists of Audiology and Speech Pathology 3010, 3040, 3050, 3065, 3200, 3310, 4040, 4330, 4650, 4720, plus not less than 9 nor more than 15 credit hours from the following: 3070, 4310, 4340, 4400, 4610, 4930, 4940. Additional recommended courses for audiology majors are Audiology and Speech Pathology 4560, 4610, 4750 and Psychology 2500, 2520, 2540 and 3150.  
A major in audiology consists of Audiology and Speech Pathology 3010, 3040, 3050, 3200, 3310, 3710, 4040, 4450, 4720, 4930 plus not less than 10 nor more than 22 credit hours from the following: 3065, 4320, 4460, 4470, and 4940.  
Additional recommended courses for speech pathology majors are: Audiology and Speech Pathology 4250, 4450, 4460, 4470, 4750, Anthropology 2530 or 3410, Psychology 2530, 2550, 2560, 2570, Special Education 4030, 4341, 4342, 4110, 4120, 4130, 4610, and Child and Family Studies 4810.  
1281 English Pronunciation for Foreign Students (3) (Same as English 1261.)  
3010 Basic Acoustics in Speech and Hearing (3) Fundamental aspects of acoustics in speech and hearing including physics of sound.  
3040 Introduction to Speech Pathology and Audiology (3) Nature, etiology, and incidence of speech, hearing, and language disorders.  
3050 Speech Science I: Phonetics (3) Basic phonetic concepts and recognition and production of spoken English sounds with analysis of their formation; acoustic characteristics of speech and speech perception. Prereq: 3010.  
3065 Speech Science II (4) Anatomy and physiology of speech production mechanism. Prereq: 3050.  
3200 Speech and Language Development (4) Speech and language development in the normal child including development of distinctive features and implications for diagnosis of speech and language development. Prereq: Psychology 3550 or Education 2430.  
3310 Articulation Disorders (4) Etiology, diagnosis, and treatment of articulatory defects. Prereq: 3050. (Same as Special Education 3310.)  
3710 Audiology I (3) Fundamental aspects of normal hearing including anatomy and physiology of ear and basic audiometric principles. Prereq: 3010. (Same as Special Education 3710.)  
4040 Appraisal of Speech and Language Disorders (4) Diagnostic procedures for children and adults with speech and language problems including observation and practice with diagnostic tests. Prereq: 3050. (Same as Special Education 4040.)  
4070 Free Association (4) Oral and written free association as process for diagnosing and treating communication disorders. Includes didactic self-analysis.  
4101 Foreign Study (1-16) See page 187.  
4102 Off-Campus Study (1-16) See page 187.  
4103 Independent Study (1-16) See page 187.  
4190 Speech Development of the Hearing Impaired (3) Prereq: 3050. (Same as Special Education 4190.)  
4200 Practicum in Speech Development of the Hearing Impaired (3) (Same as Special Education 4200.)  
4210 Language Development of the Hearing Impaired (3) (Same as Special Education 4210.)  
4220 Language Development of the Hearing Impaired (3) (Same as Special Education 4220.)  
4250 Introduction Psychology and Education of the Deaf (3) (Same as Special Education 4250.)  
4310 Stuttering (3) Nature and treatment. Review and integration of various theories. (Same as Special Education 4310.)  
4320 Clinical Practice in Speech Pathology (1-6) Prereq: 3040, 3050, 3310, 4040, and consent of instructor. S/NC. (Same as Special Education 4320.)  
4330 Clinical Practice in Speech Pathology (1-6) Prereq: 3040 and consent of instructor. S/NC. (Same as Special Education 4340.)  
4340 Clinical Practice in Speech Pathology (1-6) Prereq: 3040 and consent of instructor. May be repeated for credit. S/NC. (Same as Special Education 4340.)  
4400 Voice Disorders (4) Etiology, diagnosis, and treatment of organic and functional voice disorders. Prereq: 3065. (Same as Special Education 4400.)  
4450 Clinical Practice in Audiology (1-6) Prereq: 4720 or 4940. S/NC. (Same as Special Education 4450.)  
4460 Clinical Practice in Audiology (1-6) Prereq: 4720. S/NC. (Same as Special Education 4460.)  
4470 Clinical Practice in Audiology (1-6) Prereq: 4460. May be repeated for credit. S/NC. (Same as Special Education 4470.)  
4520 Speech Pathology (3) Independent study of special problems in speech pathology. Prereq: Consent of instructor.  
4550 Problems in Speech Pathology (3) Prereq: Consent of instructor.  
4620 Birth Defect Syndromes and Language Retardation (3) Examination of research literature pertinent to birth defects and language retardation including clinical, educational, and socio-emotional implications of such disorders. Prereq: 4610 or consent of instructor.  
4630 Practical Applications of Language Habilitation Techniques (3) Discussion and demonstration of various methods and procedures used in treating language retarded children. Prereq: 4610 or consent of instructor.  
4640 Parent Participation in Language Habilitation Programs (3) Nature of counseling and educational relationships with parents of exceptional children including: social and emotional support for families, behavior management strategies, and home training methods. Prereq: 4610 or consent of instructor.  

"ADMISSION TO CLINICAL TRAINING IN SPEECH PATHOLOGY AND Audiology Students who wish to enroll in clinical practice courses in audiology and speech pathology must apply for admission at the Department Office at least one quarter prior to the anticipated enrollment. Practicum course admissions will be decided by the Department Clinical Admissions Committee prior to the preregistration deadline. The number of admissions will be determined by limitations due to available supervisory staff, clinical facilities and clinical case loads. Applicants will be selected for admission based on their relative adequacy and potential as determined by such measures as overall grade-point averages, grade-point averages in specified basic courses taught in the Department of Audiology and Speech Pathology, aptitude tests or other such indicators the committee may elect to use. Once admitted to the Clinical Training Program, students will be continued in the program as long as they are clinically and academically successful. Whenever possible, students will be informed of their acceptance and continuation and/or discontinuation prior to the advance registration deadline of the subsequent quarter."
Bacteriology
See Microbiology.

Biochemistry (188)

Professors:
J.E. Churchich, Ph.D. Sheffield (England); K.J. Monty (Acting Head), Ph.D. Rochester; T.P. Salo, Ph.D. Michigan.

Associate Professors:
S.W. Hawkins, Ph.D. Chicago; J.G. Joshi, Ph.D. Poona (India).

Assistant Professors:
L. Brattsten, Ph.D. Illinois; R.E. Bryant, Ph.D. Illinois; R.H. Feingold, Ph.D. California (Berkeley); L. Huang, Ph.D. Michigan State.

UNDERGRADUATE
No major is offered, although course work in biochemistry is applicable to majors in biology, and chemistry.

For the Bachelor of Arts degree with a minor in biochemistry, the following courses are required: Chemistry 2140-49, 3211-21-31, 3219-29-39, and Biochemistry 4110-20 and 4119. Additional credits from Biochemistry 4210-20-30 and 4500 and/or 5010 are desirable.

4110-20 Cellular and Comparative Biochemistry (4, 4) Electrolyte behavior; chemistry and structure of cellular elements; enzymes and coenzymes; functions of basic biochemical substances; biochemical regulation; synthesis and catabolism of proteins, lipids, carbohydrates, nucleic acids; proteins, vitamins, hormones, and other nutritional factors. Prereq: 4320-20-30 or 4321-21-31 and 4329-29-39. Three lectures and discussion.

4119 Cellular and Comparative Biochemistry Laboratory (2) Basic biochemical procedures of general application in biochemistry and molecular biology. Prereq: 1 quarter of analytical chemistry. Prereq or coreq: 4110.

4210-20 Introduction to Physical Biochemistry (3, 3) 4210—Introduction to thermodynamics; phase stability and phase change; chemical potential; osmotic pressure; activity and the Debye-Hückel model; electrochemistry; membrane permeability. 4220—Elements of statistical mechanics, diffusion, collision theory; chemical kinetics and transition state theory; higher order kinetics; specialized kinetics of enzymatic processes; some bio-polymer considerations. Prereq: Mathematics 1840-50-60, Chemistry 3211-21-31 and 3219-29-39, and an introductory course in biology.

4230 Introduction to Physical Biochemistry (3, 3) Physical characterization of macromolecules; polarization, light, absorption and fluorescence, sedimentation and transport hydrodynamics, electrophoretic mobility, light scattering, and structural x-ray crystallography of proteins and nucleic acids. Prereq: 4220 or Chemistry 3430, or equivalent. 4500 Independent Research in Biochemistry (1-6) Special experimental problems under direction of staff member. Limited to undergraduates, by consent only. May be repeated for credit. Prereq or coreq: 4110-20, 4119.

GRADUATE
Master's and doctoral degree requirements are found in the Graduate Catalog. Master's degree candidates usually should offer an undergraduate major in biology or chemistry. Doctoral degree candidates must present an undergraduate major in biology or chemistry.

5000 Thesis

5010 Biochemical Techniques (2)
Botany (198)


Associate Professors: C.C. Amundsen, Ph.D. Colorado; M.W. Biemer, Ph.D. Texas; J.D. Caponetti, Ph.D. Harvard; A.M. Evans, Ph.D. Michigan; A.S. Heilman, Ph.D. Ohio State.

Assistant Professors: L.G. Hickok, Ph.D. Massachusetts; K.W. Hughes, Ph.D. Utah; B.C. Mullin, Ph.D. Carolina State; D.K. Smith, Ph.D. Tennessee; W.O. Smith, Ph.D. Duke.

Instructor: M.E. Held, M.S. Western Kentucky.

UNDERGRADUATE

Major: Consists of Biology 3110-20-30; 23 upper-division hours of botany, including 3210 and at least 2 hours from 4710-20-30, plus 4 hours of upper-division courses from a related biological science (zoology, microbiology, biochemistry, agricultural biology, forestry, ornamental horticulture and landscape design, or plant and soil science). Not more than 3 hours from 3050, 3070, 3090 allowed for major credit. Prerequisites to this major are Botany 1110-20-40 or 1118-28 or Biology 1210-20-30 and Chemistry 1110-20-30.

Biology (190)

Coordinator: K.J. Monty

A major in biology may be met by completing one of the two following concentrations:

A. Concentration in Cell Biology. Consists of Biology 3110-20-30, Chemistry 3211-21-31, 3219-29-39, Biochemistry 4110-20, 12 hours of upper-division courses from Biochemistry 4110, 5010; Botany, any 3000- or 4000-level courses (except 3050, 3070, 3090); Microbiology 3000-09, 3071-79, 4111-21, 4210-20-30, 4251-29, 4811-19, Zoology 3050, 3060, 3080, 3150, 3320, 4010, 4050, 4110-20-30, 4250, 4280, 4310, 4369, 4380, 4450, 4610-20. In meeting upper-division minimum requirement, not more than 8 hours may be credited from any one biological science department, and not more than 4 hours of research courses may be credited. Prerequisites to this concentration are Biology 1210-20-30 or Botany 1110-20 or 1118-28 or Zoology 1118-28; Chemistry 1110-20-30. Corequisites are Math 1841-51; a year sequence in physics (except 1410-20-30); and Chemistry 2140-49.

B. Concentration in Organismal and Systems Biology. Consists of Biology 3110, 3120, 3130, Chemistry 3211-21-31, 3219-29-39, and 18 of upper-division courses from Biochemistry 4110-20, 4119, 5010; Botany, any 3000- or 4000-level courses including not more than one from 3050, 3070, 3090; Microbiology, any 3000- or 4000-level courses; Zoology, any 3000- or 4000-level courses except 3010-20-30 and 3090. In meeting upper-division minimum requirement, not more than 12 hours may be credited from any one biological science department, and not more than 4 hours of research courses may be credited. Prerequisites to this emphasis are Biology 1210-20-30 or Botany 1110-20 or 1118-28 or Zoology 1118-28; Chemistry 1110-20-30. Corequisites are Math 1841-51; a year sequence in physics (except 1410-20-30); and Chemistry 2140-49.

Botany 1210-30 General Biology (4, 4, 4) 1210—Biology of cells: chemical basis of life, cell structure and function, energy metabolism, cell division, DNA, RNA, and protein synthesis, monera, protista, and fungi. 1220—Biology of plants and animals: survey of plant kingdom, structure and function of plant tissues, plant growth and reproduction, survey of the animal kingdom, reproduction and development in animals, animal tissue and organ systems. 1230—Genetics, evolution, populations and ecology. May be taken in any sequence. Students who receive credit for 1210-20 may not also receive credit for Botany 1110-20, 1118-28 or Zoology 1118-28.

3110 General Genetics (4) Classical and modern principles of heredity. Prereq: 1210-20-30 or Botany 1110-20 or 1118-28. 3 hrs and 1 additional class meeting, May be taken in any sequence or combination with 3120 and 3130.

3120 Cell Biology (4) Organization and function of the cell. Prereq: Same as 3110. 3 hrs and 1 additional class meeting. May be taken in any sequence or combination with 3120 and 3130.

3130 General Ecology (4) Relations between organisms and their environment; including human environmental problems. 3 hrs and 1 additional class meeting. Prereq: Same as 3110. May be taken in any sequence or combination with 3110 and 3120.

Black Studies

See Cultural Studies.
3210 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. Not for botany graduate credit. Prereq: One year general chemistry and one year biological science.

3300 Biological Oceanography (3) Distribution of abiotic factors in the sea and their effect on plankton growth; composition of zoo- and phytoplankton and processes affecting each; food webs in the sea; role of hyper-productive regions (estuaries, upwellings). Prereq: Chemistry 1110-20-30 and either Biology 1210-20-30 or Botany 1110-20 or Geology 2710.

4000 Tutorial in Botany (2) Individual, independent study under guidance of selected staff. By application only. May be repeated with consent of department.

4030 Mechanisms of Plant Speciation (4) Processes of plant speciation emphasizing population genetics, isolation, drift, hybridization, variation in populations, establishment of population barriers and other aspects of plant speciation. Prereq: 3010-20 and Biology 3110.


4240 Paleobotany (4) (Same as Geology 4240.)

4310 Plant Ecology (4) Interactions between individuals, species communities and their environments. Circulation of energy and matter in ecosystems. Weekly field trips or laboratory periods, and at least two weekend field trips. Prereq: 3030 or equivalent.

4410-20-30 Undergraduate Research Participation (2, 2, 2) Experience in active research projects under supervision of staff members. Prereq: Junior or senior standing, minimum grade average 3.0, consent of instructor.

4710-20-30 Senior Seminar (1, 1, 1) At least 2 hrs of 4710-20-30 are required of botany majors. Prereq: Senior standing.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduate Completion (3-15)

5003-04 Non-Thesis Research (3, 3)

5011 Mycology (4)

5012 Morphology and Evolution of Phycocyanobacteria (4)

5017 Field Mycology (4)

5021 Bryology (4)

5022 Lichenology (4)

5031 Vascular Plant Taxonomy (4)

5061 Phycology (4)

5065 Phytoplankton Ecology (4)

5070 Principles of Biological Illustration (3)

5080 Pteridology (4)

5090 Morphology and Evolution of Basidiomycetes (4)

5120 Agrostology (4)

5150 Advanced Morphology of Flowering Plants (4)

5160 Bio-systematics (4)

5210 Advanced Plant Physiology I (3)

5220 Advanced Plant Physiology II (3)

5290 Quaternary Problems (4)

5310-20-30 Special Problems in Botany (1-8, 1-4, 1-6)

5340 Plant Geography (4)

5350 Analysis of Plant Communities (4)

5410-20-30 Seminar in Teaching of College Botany (1, 1, 1)

5440 Seminar in Botany (1)

5510-20-30 Systems Ecology (3, 3, 3)

5780 Plant Cytology (4)

5810 Cytogenetics (4)

5820-21-22-23-24 Methods and Instrumentation in Laboratory Investigations (1, 1, 1, 1, 1, 1)

5830 Field Methods in Plant Ecology (4)

5850-51-52-53-54 Methods and Instrumentation in Field Investigations (1, 1, 1, 1, 1, 1)

5870 Experimental Plant Genetics (4)

5910-20 Developmental Plant Morphology (3, 1)

6000 Doctoral Research and Dissertation

6010 Advanced Topics in Morphology of Vascular Plants (2-4)

6210 Photobiology (3)

6310 Advanced Topics in Cytology and Cell Biology (2-3)

6320 Ecosystems of the World (3)

6420 Advanced Topics in Genetics (2-4)

6620 Seminar in History of Botany (2)

6820 Advanced Topics in Plant Physiology (2-4)

6830 Advanced Topics in Ecology (2-4)

6930 Advanced Topics in Systematic Botany (2-4)

Chemistry (235)

Professors: D.A. Shirley (Head), Ph.D. Iowa State; N.S. Bowman, Ph.D. Princeton; C.A. Buehler (Emeritus), Ph.D. Ohio State; W.E. Bull, Ph.D. Illinois; C.J. Collins, Ph.D. Northwestern; J.A. Dean, Ph.D. Michigan; J.F. Eastham, Ph.D. California (Berkeley); W.H. Fletcher, Ph.D. Minnesota; C.W. Keenan, Ph.D. Texas; D.G. Kleinfelter, Ph.D. Princeton; J.W. Larsen, Ph.D. Purdue; M.H. Lietzke, Ph.D. Wisconsin; G. Mammot, Ph.D. Louisiana State; A.D. Melaven (Emeritus), Ph.D. Penn State; G.D. Kelby, Ph.D. California (Berkeley); G.K. Schwellzer, Ph.D. Illinois; H.A. Smith (Emeritus), Ph.D. Harvard; W.T. Smith (Emeritus), Ph.D. Ohio State; W.A. Van Hook, Ph.D. Johns Hopkins; E.L. Wehrly, Ph.D. Purdue; T.P. Williams, Ph.D. London (England); J.H. Wood (Emeritus), Ph.D. North Carolina.

Associate Professors: J.E. Bloor, Ph.D. Manchester (England); J.G. Chambers, Ph.D. Kansas, G.W. Kabalka, Ph.D. Purdue; J.F. Kinville, Ph.D. Akron; C.A. Lane, Ph.D. California (Berkeley); R.M. Magid, Ph.D. Yale; R.M. Pagni, Ph.D. Wisconsin; J.R. Peterson, Ph.D. California (Berkeley).

Assistant Professors: J.L. Adcock, Ph.D. Illinois; F.A. Grimm, Ph.D. Cornell; J.D. Kovac, Ph.D. Yale; L.J. Maglid, Ph.D. Tennessee; F.M. Schell, Ph.D. Indiana; C. Woods, Ill, Ph.D. North Carolina State.

Alumni Distinguished Service Professor.

UNDERGRADUATE

For information regarding the Bachelor of Science in Chemistry degree and the cooperative program in chemistry, see page 185.

There are two alternative routes for the student to take in designing a program for a B.A. degree with a major in chemistry.
Concentration A is designed to prepare the student for a career as a professional chemist or for entrance into graduate school in such fields as chemistry, biochemistry, geochemistry, etc. This program has similarities to that leading to the degree of Bachelor of Science in Chemistry, but with more opportunity for selection of electives outside the department and outside of science. Unlike the Bachelor of Science in Chemistry degree, the B.S. degree using Concentration A is not approved by the Committee on Professional Training of the American Chemical Society.

The prerequisites consist of Chemistry 1110-20-30, Mathematics 1840-50-60, 2840-50, Physics 2510, 2310-20. The concentration consists of Chemistry 2140, 2149, 3211-21-31, 3219-29-39, 3410-20-30, 3429 plus at least 10 hours of additional upper-division work in chemistry. (Up to six hours of biochemistry 4000 level and above or Geology 4610 may be applied to the ten hour requirement.) While not required, it is recommended as an elective for majors in this concentration.

Concentration B is designed for students who have career objectives in fields other than chemistry, but in fields where chemistry has direct applications, such as medicine, dentistry, pharmacy, law, business and ecology. This concentration, supplemented by appropriate courses from other areas, is suitable for students planning careers in these areas. Concentration B is specifically designed to provide more elective hours which may be employed in fields which are related to chemistry. Concentration B is not appropriate for students intending to become professional chemists.

The prerequisites consist of Chemistry 1110-20-30, Mathematics 1540-50-60 or 1840-50-60 and any one of the following natural science options: (a) Physics 2210-20-30 or 2510, 2310-20, (b) Geology 1520-20 or 2510, (c) Biology 1000-20 or 1118-20, (d) Botany 1110-20. The concentration consists of Chemistry 2140, 2149, 3211-21-31, 3219-29-39, 4290 plus at least 10 hours of additional upper-division work in chemistry. (Up to six hours of biochemistry 4000 level and above or Geology 4610 may be applied to the ten hour requirement.)

A minor in chemistry shall consist of the successful completion of 24 hours of chemistry courses numbered 2000 and above including Chemistry 2140-49 (4 hours) and at least one of the following sequences: Chemistry 3211-21-31, 3219-29-39 (12 hours) or Chemistry 3410-20-30 (9 hours) or Chemistry 4910-20-30 (9 hours).

Placement in Freshman Sequences: The sequence which meets all requirements of a year of general chemistry and is a prerequisite for upper-division courses is 1110-20-30. The 1500 and 1600 series have more limited applications. The 1500 series emphasizes organic and biochemistry and may be used as a prerequisite only for 2230 and 3410-20-30. The 1600 series is for non-science majors and does not provide an adequate background for any additional courses in chemistry.

It is possible to move from one sequence to another if permission for substitution is obtained in advance. For example, a student who finds a need to complete the course after having completed 1510 may substitute 1510 for 1110 with the approval of the chemistry department and may then take 1120 followed by 1130. However, no single quarter hour of 1110 or 1120 sequences may be substituted for 1120 or 1130. Credit may be received for only one of the courses 1110, 1510, or 1610.

In any chemistry course above the freshman level which has Chemistry 1110-20-30 as a prerequisite, 1510-20-30 may be used as a prerequisite with approval of the chemistry department.

Chemistry 1119-28-38 is an honors course designed for the student who has already made considerable progress in science. Class size may be limited to promote faculty-student interaction.

Selection of concentration B will depend on the student's high school chemistry grade, and if necessary, performance on a placement examination to be given during the first class meeting. A student receiving a passing grade below B in 1118-20 is required to work by taking 1120-30. A student receiving a grade of C or D in 1128 will not be eligible for 1138 and must take 1130 to get the full 12 hours credit.

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 quarters of freshman chemistry. If a satisfactory grade is made on the examination, credit will be allowed for the quarter (or course) for which the exam was taken.

1110-20-30 General Chemistry (4, 4, 4) General course based on ACT scores. Chemistry 1110—Modern atomic theory, chemical bonding, stoichiometry and quantitative treatment of gas laws. 1120—Introduction to solution chemistry, kinetics, chemical equilibria, and thermodynamics. 1130—Descriptive chemistry of non-metallic compounds and introduction to atomic and organic chemistry. Must be taken in sequence. 3 hrs and 1 lab.

1118-28-38 Honors: General Chemistry (4, 4, 4) (See explanation above.) 3 hrs and 1 lab.

1410 Chemistry for Nurses (4) Inorganic, organic, and biochemistry. 3 hrs and 1 lab.

1420 Chemistry for Nurses (4) Aromatic compounds and biological chemistry. Prereq: 1410. 3 hrs and 1 lab.

1510-20-30 General Chemistry (4, 4, 4) Introductory course with emphasis on topics relating to living systems. 1510—Bonding and molecular structure, gas laws, liquid and solid state, solutions, colloids. 1520—Acids and bases, oxidation and reduction, kinetics and equilibria. Introduction to organic chemistry, alkanes, unsaturated and aromatic hydrocarbons. 1530—Structure and reactions of various organic functional groups. Introduction to biochemistry—amino acids and proteins, carbohydrates, lipids, nucleic acids. Must be taken in sequence. 3 hrs and 1 lab.

1610-20 Chemistry and Society (4, 4) Chemistry for non-science majors emphasizing role of chemistry in dealing with current social concerns. 1610—Basic principles including particle nature of subatomic structure, their structure, and chemical changes. 1620-Impact and utilization of chemical principles in modern society with selected topics in areas of energy, environment, medical and consumer products. Must be taken in sequence. 3 hrs and 1 lab.

2140 Analytical Chemistry (3) Principles and practice of quantitative measurements in chemical analysis, including wet-chemical, gravimetric, titrimetric, spectrophotometric, and polarographic methods. Prereq: 1110; coreq: 2149.

2149 Analytical Chemistry (1) Experiments on topics discussed in 2140. Prereq or coreq: 2140. 1 lab.

2230 Elements of Organic Chemistry (4) Brief treatment of organic chemistry with emphasis on compounds of biological interest. Prereq: One year of general chemistry. Not open to chemistry majors or minors. Credit may not be received for both Chemistry 2230 and 3211, toward graduation or otherwise.

3211-21-31 Organic Chemistry (3, 3, 3) Compounds of carbon and their reactions, reaction mechanisms, stereochemistry, and physical properties of organic compounds. Must be taken in sequence. Prereq: 1120-20-30. Corresponding laboratory (3219-29-39) is coreq for students not having credit for the laboratory. 3 lab.

3219-29-39 Organic Chemistry Laboratory (1, 1, 1) Experiments on topics discussed in 3211-21-31. Corresponding lecture (3211-21-31) is coreq for students not having credit for the laboratory. 3 lab.


3429-39 Physical Chemistry Laboratory (1, 1) Gases, liquids, chemical equilibria, solutions, phase equilibria, reaction kinetics and electrochemistry. Prereq or coreq: Corresponding courses (3420 and 3430). 1 lab.

3511-21-31 Principles of Organic Chemistry (3, 3, 3) Structure and reactivity of aliphatic and aromatic compounds. Nomenclature, identification, applications of spectroscopic and physical techniques to elucidate reaction mechanisms. Rationale of laboratory experiments. Planning careers in physical or biological sciences. Must be taken in sequence. Prereq: 1120-20-30. Corresponding laboratory: 3219-29-39 or 3218, 3529-39 is a coreq; latter is recommended.

3529-39 Organic Chemistry Laboratory (1, 1) Experiments on topics discussed in 3521-31. Similar to 3239-39 except that 3529-39 is coreq for students who have need for operating knowledge of various spectroscopic and chromatographic techniques. Corresponding lecture (3521-31 or 3231-31) is coreq for students not having credit for the lecture.

3610 Radioactivity and its Applications (3) Radioactive materials in tracer and therapeutic applications. Radioisotopes in the methods and techniques, tracer procedures and safety precautions in agriculture, biology, medicine, nutrition, etc. Not for credit of students who have or minors. Prereq: Math 1550 or equivalent, 1 yr of general chemistry.


4119 Physical Chemistry Laboratory (1) Solutions, phase equilibria, spectroscopy. The corresponding course 4110 is coreq.

4160-70 Intermediate Physical Chemistry (3, 3) (Designed for entering graduate students who have had one year of physical chemistry.) The three laws of thermodynamics, phase
equilibria and solutions, and chemical equilibria.
4170—Gases and kinetic theory, chemical kinetics,
molecular spectroscopy, and introduction to
chemical statistics.
4210 Advanced Analytical Chemistry (3) Chemical
separations including chromatography, ion
exchange and solvent extraction; spectrophoto-
metric techniques. Prereq: 2140-49.
4219 Advanced Analytical Chemistry Laboratory
(1) Experiments on topics discussed in 4210.
Coreq: 4220.
4220 Advanced Analytical Chemistry (3) Electro-
analytical methods of analyses (including po-
tentiometry, coulometry, polarography, and vol-
tammetry); magnetic resonance methods; mass
spectrometry; x-ray absorption and fluorescence
techniques. Prereq: 2140-49; 3420 or 4290 rec-
commended.
4229 Advanced Analytical Chemistry Laboratory
(1) Experiments on topics discussed in 4220.
Coreq: 4220.
4420 Physical Inorganic Chemistry (3) Theoretical
concepts leading to an understanding of inorganic
chemistry; quantum theory of the atom, principles
of molecular structure, and elementary nuclear
chemistry. Prereq: 3410-20-30, 4110.
4430 Intermediate Inorganic Chemistry (3) Ap-
lication of theoretical concepts to inorganic ele-
ments, their chemical states, and their reactions.
Prereq: 4420.
4510 Organic Qualitative Analysis (3) Identification
of pure organic compounds and mixtures. Prereq:
3211-21-31, 3219-29-39 or 3218, 3529-39. 3 labs.
(Not open to students who have completed 4610.)
4550 Organic Reaction Mechanisms (3) Prereq:
3211-21-31, 3219-29-39.
4610-20 Advanced Chemical Experimentation
(2, 2) Laboratory courses in application of modern
experimental techniques to solution of chemical
problems. Synthesis and characterization of or-
ganic and inorganic compounds with emphasis on
independent study using advanced techniques.
Prereq: 3231-39 or 3231-3539, 3430-39, 4220. Stu-
dents who receive credit for 4610 may not also re-
cieve credit for 4510.
4710 Research in Chemistry (2) Open to senior
majors with consent of department head. Written
report must be submitted to research director at
termination of project. May be repeated. Maximum
4 hrs credit.
4910-20-30 Biophysical Chemistry (3, 3, 3) Phys-
ic-chemical principles with applications to biologi-
cal systems. Must be taken in sequence. Not open
to students having 3410-20-30. 4910—Gas laws;
first, second and third laws of thermodynamics;
equilibrium. 4920—Solution chemistry; electroly-
ics; kinetics; nuclear chemistry; 4930—
Elementary quantum chemistry; optical and mag-
netic spectroscopy; light scattering; macromolec-
ular properties. Prereq: 1110-20-30; Math 1540-50
or equivalent.
4929 Biophysical Chemistry Laboratory (1)
Experiments on topics discussed in 4910-20-30.
Must be taken in sequence. Not open to students
taking 3410-20-30-39 sequence. 4920 is coreq
and prerequisite for 4929. 1 lab.
GRADUATE
Students majoring in chemistry for the M.S. or Ph.D. degree are required to
present as a prerequisite one year each of general, analytical, organic, and
physical chemistry with a satisfactory
record. Students lacking any of these
prerequisites may be admitted with
appropriate deficiencies which must be
removed without grade credit.
For students minorin in chemistry, the
prerequisite is two years of chemistry
including quantitative analysis.
The master's and doctoral degree
requirements are found in the Graduate
Catalog. The department offers
specialization in nine areas for the Ph.D.: analytical, environmental, inorganic,
onorganic, physical, theoretical, chemical physics and polymer science.
5000 Thesis
5110-20-30-35 Advanced Organic Chemistry (3, 3, 3, 3)
5129 Advanced Organic Chemistry Laboratory (3)
5140 Introductory Polymer Chemistry (3)
5150 Kinetics of Polymerization (3)
5160 Organic Chemistry of Polymers (3)
5170 Physical Chemistry of Polymers (3)
5220 Analytical Chemistry of Environmental Pol-
lutants (3)
5240 Electronics for Chemists (4)
5250-60-70 Advanced Analytical Chemistry (3, 3, 3)
5259-69-79 Advanced Analytical Chemistry Lab-
oratory (1, 1, 1)
5340-50 Quantum Chemistry (3, 3)
5410-20-30 Advanced Physical Chemistry (3, 3, 3)
5450 Statistical Thermodynamics (3)
5511 Survey of Inorganic Chemistry (3)
5521 Survey of Analytical Chemistry (3)
5531 Survey of Organic Chemistry (3)
5550 Industrial Chemical Research (3)
5610-20-30 Chemical Basis of Energy Conver-
sion (1, 1, 1)
5710-20-30 Theoretical Inorganic Chemistry (3, 3, 3)
5810 Nuclear Chemistry (3)
5911-21-31 Chemistry Seminar (1, 1, 1)
6000 Doctoral Research and Dissertation
6111 Selected Topics in Organic Chemistry (3)
6130 Natural Product Chemistry (3)
6150 Theoretical Organic Chemistry (3)
6160 Physical Organic Chemistry (3)
6165 Orbital Symmetry Control (3)
6175 Organic Photochemistry (3)
6190 Organometallic Chemistry (3)
6210 Advanced Analytical Spectroscopy (3)
6211 Selected Topics in Analytical Chemistry (3)
6311 Selected Topics in Polymer Chemistry (3)
6320 Natural Polymers (3)
6411 Selected Topics in Physical and Theoretical
Chemistry (3)
6420 Nuclear Magnetic Resonance (3)
6430 Photochemistry and Radiation Chemistry (3)
6450 Electrochemistry (3)
6475 Electronic Structure of Radicals (3)
6480 Statistical Thermodynamics (3)
6485 Advanced Chemical Kinetics (3)
6510 Thermodynamics of Solutions (3)
6520 Magnetic Resonance (3)
6711 Selected Topics in Inorganic Chemistry (3)
6730 Topics in Quantum Chemistry (3)
6750 Molten Salt Chemistry (3)
6810 Vibrational Problems in Molecular Spectra (3)
6820 Molecular Vibration-Rotation Theory (3)
6811 Selected Topics in Nuclear Chemistry (3)

Chinese
See Cultural Studies (Asian Studies).

Classics (257)
Professors: H.C. Rutteridge (Head), Ph.D. Ohio State; A. Rapp
(Emeritus), Ph.D. Illinois.
Associate Professors: M.L. Henbest, M.A. Arkansas; J.E. Shelton,
Ph.D. Vanderbilt.
Assistant Professors: G.C. Gesell, Ph.D. North Carolina (Chapel Hill);
B.J. Levy, Ph.D. Texas; P.J. Nassen, Ph.D. Ohio State.

Greek
UNDERGRADUATE
A major in Greek consists of 39 hours of
language courses numbered above 2000
but including Classics 4220. Nine hours
from the following general courses may be
substituted for language courses at
the discretion of the department:
Classics 3210-20, 3310-20, 4010. 4101 may be taken
for a maximum of 6 hours.
The Greek minor consists of 24 hours in
language courses numbered above 2000
including Classics 4220. Six hours from
the following general courses may be
substituted: Classics 3210-20, 3310, 3320.
1210-20-30 Beginning Greek (3, 3, 3) Must be
taken in sequence.
2810 Xenophon (4)
2820 Homer: Odyssey (4)
2830 Homer: Iliad (4)
2840 Greek New Testament (4) Prereq: 2610 or
consent of instructor.
3010 Plato (3)
3020 Herodotus (3)
3030 Euripides (2)
4020 Aeschylus, Sophocles (3)
4030 Lysias (3)
4040 Aristophanes (3)
4050-60-70 Directed Readings in Greek (3, 3, 3)

Latin
UNDERGRADUATE
A major in Latin consists of 39 hours in
language courses numbered above 2000,
but including Classics 4220. Nine hours
from the following general courses may be
substituted for language courses at
the discretion of the department:
Classics 3210-20, 3310, 3330, 4010. 4101 may be taken
for a maximum of 6 hours. Greek
language courses numbered above 2000
may be substituted for a maximum of 9
hours of Latin courses with consent of
department.
The Latin minor consists of 24 hours in
language courses numbered above 2000
including Classics 4220. Six hours from
the following general courses may be
substituted: Classics 3210-20-30, 3310,
3320, 3330.
Placement Examination: Students who transfer to UTK from other colleges and students who enter with high school units in Latin should register for the courses in which they would normally be placed on the basis of such credits. During the first week of the quarter a placement test will be given, and students will be advised if a change in registration is indicated by the results.

Proficiency Examinations. Students who have acquired a knowledge of Latin through private study or tutoring should request a proficiency test. A student who earns a grade of B or better in this examination is eligible for credit toward graduation. A student who omits any course in a sequence may receive credit for it by passing the appropriate proficiency examination.

Certification for Teaching Latin in Tennessee. Consult Certification Clerk, Room 212, Claxton Education Building.

1110-20-30 Beginning Latin (3, 3, 3) Must be taken in sequence.
2511-21 Intermediate Latin (4, 4, 4) 2511—Readings from the age of Cicero. 2521—Virgil’s Aeneid. Open to those who have had at least two years of high school Latin, or equivalent.
3140 Ovid (3) Prereq: 3 or 4 years of high school Latin or 2521.
3150 Plautus and Terence (3) Prereq: 3 or 4 years of high school Latin or 2521.
3160 Catullus (2) Prereq: 3 or 4 years of high school Latin or 2521.
3440 Livy (3)
3450 Pliny and Martial (3)
3460 Eleagae Poets (3)
4120 Horace, Satires and Epistles (3)
4140 Cicero and Techniques of Latin Prose Composition (4) Recommended for Latin majors and minors, especially those intending to teach or pursue graduate work. Works of Cicero studied as models for prose composition.
4310 Selected Readings from Latin Literature (3)
4320-30 Selected Readings from Latin Literature (3, 3) May be repeated for credit.
4340 Horace, Odes (3)
4350 Tacitus (3)
4360 Lucretius (3)
4370 Readings in Medieval Latin (3)

GRADUATE
5410-20-30 The Latin Epic. Lucretius, Virgil, Lucan (3, 3, 3)
5510-20-30 Roman Comedy. Plautus, Terence (3, 3, 3)
GENERAL COURSES
2710 Greek Etymology (3) Origin and derivation of words. Greek stems most commonly found in English language with special attention to words in scientific and technical vocabularies.
2720 Latin Etymology (3) Origin and derivation of words. Latin stems most commonly found in English language with special attention to words in scientific and technical vocabularies.
2810 Greek Life (4) Manners and customs, social and civic aspects of classical civilization; family, politics, laws, finance, commerce.
2820 Roman Life (4) Description same as for Greek Life 2420.
3210 Early Greek Mythology (3) Comprehensive study of Greek myths through readings, lectures, and discussion with emphasis on significance for Greek thought and current research. May be repeated for credit with consent of department.
3220 Greek Mythology in the Classical Period (3) A study of use of myth in literature, history, religion, philosophy, and art of Classical Age of Greece, and in literature from earlier periods. Familiarity with basic Greek myths is assumed. Readings, lectures, slides, and discussion. (Same as Religious Studies 3230.)
3230 Roman Mythology (3) Study of myths created by Romans, as well as those the Romans borrowed from Greeks, with reference to Roman attitude toward historical, religious, Roman world with emphasis on palaces of Crete and Mycenae, Tiryns, and Pylos, their fall, the following Dark Age, and rebirth of Greek Homer. Illustrated lectures.
3220 Art and Archaeology of the Aegean Bronze Age and Early Greece (3) Troy, the Cyclades Islands, Greek mainland, and Crete. Emphasis on palaces of Crete and Mycenae, Tiryns, and Pylos, their fall, the following Dark Age, and rebirth of Greek Homer. Illustrated lectures.
3330 Art and Archaeology of Hellenistic Greece and Rome (3) Hellenistic Greek, Etruscan, and Roman sculpture, painting, and architecture with attention to city planning. Illustrated lectures.
3340 Cities of the Greek and Roman World (3) Archaeological survey of Greek and Roman cities from 3000 B.C. to 500 A.D. with emphasis on development of city planning and quality of life. Such cities as Mycenae, Athens, Rome, Alexandria, Rome, and Lepcis Magna will be studied.
3350 Shores and Sanctuaries of the Greek and Roman World (3) Survey of major shrines and sanctuaries of Greece and Rome with emphasis on archaeological remains. Such sites as Olympia, Epidaurus, Paestum, Cumaean, Praeneste, and Baalbek will be considered. Readings in selected classical authors will add to understanding of place of great shrines and sanctuaries in Greek and Roman life.
3510 Early Greek Literature in English Translation (3) Homer’s epics to Pindar and era of Persian Wars.
3520 Classical Greek Literature in English Translation (3) Age of Pericles: Tragedy, Thucydides, Aristophanes.
3530 Later Greek Literature in English Translation (3) Alexander’s world: Aristophene to Theocritus.
4010 Greek Drama in English Translation (3) Survey of dramatic masterpieces of Greek literature.
4011 Foreign Study (1-16) See page 187.
4210 Teaching of Latin (3) Carries no language credit. For description see Education, Curriculum and Instruction 3065. (Same as Educ. C/3065.)
4220 Seminar in Classical Studies (3) Special problems in literatures and other arts of Greece and Rome. For graduate students and advanced undergraduates. May be repeated for credit with consent of department.
4230 Classical Mythology and Its Uses (3) Intensive review and survey of Greek and Roman mythology for graduate students and advanced undergraduates. Emphasis on use of classical mythology in literature, music, and plastic arts, especially of modern times.
4510 Selected Readings in Latin Literature in Translation (3) May be repeated for credit with consent of department.
GRADUATE
5620 Problems in Old World Archaeology (3)

Comparative Literature
See Cultural Studies.

Computer Science (266)


Assistant Professors: C.P. Huang, Ph.D. SUNY (Buffalo); R.J. Jordan, Ph.D. Wisconsin, J.M. Mostell, Ph.D. Ohio State; C.P. Plejfer, Ph.D. Pennsylvania State; D.W. Straight, Ph.D. Texas.

*Space Institute

UNDERGRADUATE
Computer science offers an undergraduate major and minor as well as a Master of Science degree (for details, see Graduate Catalog). Information about computer science programs may be obtained from the computer science office, 8 Ayres Hall or from the Liberal Arts Advising Center, 220 Ayres Hall.

Major: Computer Science 1510 is a prerequisite to a major in computer science which consists of 2510, 3150, 3510, 3520, 4510, and 4550, and an additional fifteen hours selected from computer science intermediate and advanced courses as listed below. Also required are Math 2840-50-60 (or the honors sequence 2848-58-68) and Statistics 3450. Minor: A minor in computer science consists of 2510, 3150, 3520, 4550, and an additional 12 hours of computer science upper-division courses.

Introductory and Service Courses
1410 Introduction to Business Oriented Programming (3) Current and potential uses of computers as tools in the business environment with emphasis on learning FORTRAN programming. Not for computer science majors. May receive credit for both 1410 and 1510. Intended primarily for students in College of Business Administration. Prereq: Math 1510 or Math 1840.
1510 Introduction to Computer Science (4) Computer as a tool of varied uses in modern world; emphasis on basic programming in FORTRAN. Problem-solving processes; organization and characteristics of digital computers. Survey of applications of computers in various disciplines. Students may not receive credit for both 1410 and 1510. Prereq: Mathematics 1560 or Mathematics 1840.

3010 Computers and Society (3) History of computing and computer systems; capabilities of computer system; applications in artificial intelligence, humanities, social sciences, sciences and engineering; computers in public life; computer assisted instruction, future advances in computing; careers in computing. Prereq: Consent of instructor.
3150 Introduction to Numerical Algorithms and Programming (3) Roots of equations, systems of linear equations, least-squares data fitting, numerical integration, numerical methods for ordinary differential equations. Introduction to programming in FORTRAN. 3150 and 3155 may not both be taken for credit; students with a knowledge of FORTRAN should take 3150. Prereq: 1510 or 1610 or consent of instructor. Prereq or coreq: Math 2860. (Same as Math 3150.)

3155 Introduction to Numerical Algorithms (3) Roots of equations, systems of linear equations, least-squares data fitting, numerical integration, numerical methods for ordinary differential equations. 3150 and 3155 may not both be taken for credit; students with a knowledge of FORTRAN should take 3150. Prereq: 1510 or 1610 or consent of instructor. Prereq or coreq: Math 2860. (Same as Math 3155.)

3410 Computer Programming—COBOL (3) Computer programming in business oriented language COBOL. Prereq: 1410 or 1510 or 3150 or consent of instructor.

3910 Commercial Computer Concepts and Control (3) Elements, operation, and control of computers in a business environment. Topics include input, output, data manipulation, applications, control, and error correction. Prereq: 3410 and Accounting 3210.

4310 Computation in Statistical Analysis (3) Use of digital computer in standard statistical analyses, such as frequency tabulations, normal prob. and correlation regression, analyses of variance. Not for credit for computer science majors. Prereq: Statistics 200 or equivalent. An elementary knowledge of a procedure-oriented language such as FORTRAN is also assumed.

4330 Independent Study in Computer Science (1-3) Credit will be given for independent study in areas of student's primary interest. To be directed by computer science faculty, perhaps jointly with student's faculty adviser. Prereq: Consent of instructor. May be repeated. Maximum 9 credit hrs.

Intermediate and Advanced Courses

3510 Computer Organization and Programming I (3) Problem formulation and advanced programming in FORTRAN; operation and control of digital computers. Prereq: 1510 or 2510, or 3150 or consent of instructor.


3570 Programming Languages (4) Comparison and analysis of programming languages and their features. Languages to be discussed will include SNOBOL, FORTRAN, ALGOL. Prereq: 2510. Prereq: Coreq: Math 3725 or equivalent.

3715 Discrete Structures (3) Introduction to discrete structures useful in computer science. Sets, set logic. Relations, functions. Proof techniques—induction, logic. Graphical representations and algorithms. Prereq: 1510 or 1610 or 3150 (or equivalents). Prereq or coreq: Mathematics 2860. (Same as Mathematics 3715.)

3725 Advanced Discrete Structures (3) Advanced logic in discrete structures useful in computer science. Graphs and algorithms for manipulating data represented by them. Algebraic structures, Boolean algebra, lattices, groups, monoids. Prereq: 3715 or equivalent. (Same as Mathematics 3725.)

4050 Number Systems for Digital Computers (3) The mathematical basis of digital computer systems: number representation, number processing, and data transmission. Prereq: 1510 or 1610 or 3150 or consent of department. Prereq: Recommendation of computer science staff.

4022 Numerical Solution to Equations and Numerical Approximations (3) (Same as Mathematics 4225.)

4225 Numerical Methods for Ordinary Differential Equations (3) (Same as Mathematics 4235.)

4245 Numerical Linear Algebra (3) (Same as Mathematics 4245.)

4510 Data Structures and Non-numerical Programming (3) Data structures and algorithms for their manipulation. Arrays and orthogonal lists; stacks, queues; doubly-linked lists, trees, dynamic storage allocation; organization of files, programing languages for information structures. Prereq: 3520, or 3725 or equivalent. Knowledge of SNOBOL equivalent to that gained in 3570.


4620 Operating Systems—Case Studies (3) Alternatives in operating system design, dynamic relocation, paging, segmentation, time sharing, time-slicing, protection, concurrency, real time systems. Examples from different operating systems analyzed as assigned. Prereq: 4610 or equivalent or consent of instructor.

4660 Compiler Construction (3) Practical experience with design of compilers. Scanning, parsing, semantic processing, code generation, optimization, error detection and correction. Term project will include a complete compiler for small block-structured language. Prereq: 4510.


4730 Analysis of Non-numerical Algorithms (3) Study of efficient algorithms for searching (e.g., binary search, tree searches, hash coding) and sorting (e.g., heap sort, Shell's sort, quicksort). Algorithms for other non-numerical applications, such as pattern matching, graph path detection, set operations. Precise notions of time and space complexity. Polynomial complete problems. Prereq: 4510.

4750 Interactive Computer Graphics (3) Point plotting, vector generation, interactive graphical techniques, two and three dimensional transformation, perspective projection, line elimination, shading, software and hardware system design. Discussion of use of these techniques in design, problem solving, system design, and management in other areas. Prereq: Senior standing in computer science, electrical engineering or geography and a knowledge of computer programming, or consent of instructor. (Same as Elec. Engr. 4750 and Geography 4750.)

4820 Introduction to Pattern Recognition (3) (Same as Elec. Engr. 4820.)

4830 Digital Image Processing (3) (Same as Elec. Engr. 4830.)

4850 Small Computer Systems (3) (Same as Elec. Engr. 4850.)

4910 Analysis and Management of Computer Installations (3) Analysis and design of computer systems; implementation, justification, personnel in systems maintenance. Prereq: 3520 or equivalent.

4980-90 Special Topics in Computer Science (1-4, 1-4) Credit determined at time of registration. May be repeated. May not be repeated without consent of department. Prereq: Recommendation of computer science staff.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5010 Computer Assisted Instruction (3)

5050 Computer Modeling and Simulation of Physical Systems (3)

5210 Artificial Intelligence (3)

5250 Medical Computing (3)

5430 Theory of Compilers (3)

5455 Finite Difference Methods for Partial Differential Equations (3)

5465 Finite Element Methods (3)

5475 Advanced Topics in Numerical Partial Differential Equations (3)

5655-65-75 Numerical Mathematics (3, 3, 3)

5670-80 Advanced Operating Systems (3, 3)

5710 Finite Automata Theory (3)

5720 Computability and Computational Complexity (3)

5750 Theory of Formal Languages (3)

5810 Information Organization and Retrieval (3)

5840-50 Pattern Recognition (3)

5910-20-30 Special Topics in Computer Science (1-4, 1-4, 1-4)

5940-50 Advanced Small Computer Systems (3, 3)

5970 Independent Study in Computer Science (1-3)

Cultural Studies

Director: Dr. Charles O. Jackson

Basic Faculty

J. S. Elliott, Ph.D., Russian; E. J. Gangloff, Ph.D., Special Programs; D. M. Fiene, Ph.D., Russian; T. J. A. Heffernan, Ph.D., English; C. O. Jackson, Ph.D., History; S. B. Kurth, Ph.D., Sociology; H. E. Lewald, Ph.D., Spanish; D. H. Littlejohn, B.A. Special Programs; P. A. Marr, Ph.D., History; C. J. Mellor, Ph.D., German; M. E. Peek, M.A. History; M. P. Rice, Ph.D., Russian; H. C. Rutledge, Ph.D., Classics; P. B. Scott, Ph.D., Home Economics; S. E. Wallace, Ph.D., Sociology.

The ideal curriculum encourages not only proficiency in a given field of knowledge but also the comprehension of similarity and complementarity between areas of intellectual endeavor. One answer to the need for fusion and integration of knowledge is the interdisciplinary program. The college has joined the resources of several departments to offer a cultural studies major with concentrations in American studies, Ancient Mediterranean Civilizations, Asian studies, Black studies, comparative literature, Latin American studies, linguistics, Medieval studies, Russian and East European studies, and urban studies. Minors are provided in Asian studies, Black studies, comparative literature, Latin American studies, linguistics, Medieval studies, urban studies, and women's studies.

American Studies (099)

History 2510-20 (or equivalent honors courses) are prerequisite to a concentration in American studies which consists of 36 quarter hours: English 3010-20-30, American Studies 3010 and 4010, and 21 hours of upper-division electives dealing with the American experience.
Nine hours of the elective group must be from one of the following disciplines: anthropology, economics, political science, or sociology. A list of acceptable elective courses is published annually by the American Studies Committee.

For further information consult the chairperson of the American Studies Committee, Dr. Charles Jackson.

3010 Introduction to American Culture (3) Explores dynamics and nature of contemporary American culture.

3233-34 Forms of Popular Literature and Culture (3, 3) Same as English 3233-34.

4010 Topics in American Culture (3) Content varies. May be repeated once.

Asian Studies (145)

The Asian studies concentration consists of 36 quarter hours: Asian Studies 2510-20 plus 28 additional credits from Asian studies or approved departmental courses. The latter should constitute a coherent program, including a minimum of one course (3 or 4 hours) from each of the following three areas: (a) art, Asian culture, literature, and music; (b) economics, geography, history, and political science; (c) anthropology, philosophy, religious studies, and sociology. Students who prefer to use Asian Studies 2510-20 for Triad or elective credit may, with permission of the program chairperson, substitute eight additional upper-division hours in acceptable courses for that required sequence in the concentration.

The Asian studies minor consists of 24 quarter hours: Asian Studies 2510-20 plus 16 additional credits from Asian studies or approved departmental courses. The latter should include a minimum of one course (3 or 4 hours) from each of the following areas: (a) art, Asian culture, literature, and music; (b) economics, geography, history, and political science; (c) anthropology, philosophy, religious studies, and sociology. Students who prefer to use Asian Studies 2510-20 for Triad or elective credit may, with permission of the program chairperson, substitute eight additional upper-division hours in acceptable courses for that required sequence in the minor.

It is strongly recommended that students planning to attend graduate school take an appropriate Asian language through the intermediate level.

Further information may be obtained from the chairperson of the Asian Studies Committee, Dr. Phoebe Marr.

2510-20 Asian Civilization (4, 4) Introduction to Asian civilization by comparative study of development of religion, social institutions, and high culture in India, China, Japan and the Islamic world. 2510—Rise of classical civilizations. 2520—Traditional cultures and their modern developments.

3310 Indian Culture (4)

3320 Chinese Culture (4)

3330 Japanese Culture (4)

3340 Islamic Culture (4)

4010-20-30 Readings in Asian Literature (4, 4, 4) Prerequisites: Mastery of intermediate-level of Japanese, Chinese, or Arabic and consent of instructor.

4012 Selected Topics in Asian Studies (4) Content varies. May be repeated. Maximum credit 12 hrs.

Asian Language and Literature

ARABIC (127)

(See Romance Languages)

1510-20 Spoken Arabic (4, 4)

2110-20-30 Elementary Modern Standard (3, 3, 3)

3510-20 Intermediate Modern Standard (4, 4)

3610 Islamic Literature in English Translation (4)

4101 Foreign Study (1-16)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

CHINESE

Asian Studies 2531-32 Elementary Chinese (4, 4) Taped language program. Must be taken in sequence.

Asian Studies 3531-32 Intermediate Chinese (4, 4) Taped language program. Prerequisite: 2531-32 or equivalent or consent of instructor. Must be taken in sequence.

Asian Studies 4531-32-33-34 Advanced Chinese (4, 4, 4, 4) Taped language program. Prerequisite: 3531-32 or equivalent or consent of instructor. Must be taken in sequence.

HEBREW

Asian Studies 2831-32 Elementary Modern Hebrew (4, 4) Taped language program. Must be taken in sequence.

Asian Studies 3831-32 Intermediate Modern Hebrew (4, 4) Taped language program. Prerequisite: 2831-32 or equivalent or consent of instructor. Must be taken in sequence.

JAPANESE

Asian Studies 2631-32 Elementary Japanese (4, 4) Must be taken in sequence.

Asian Studies 3631-32 Intermediate Japanese (4, 4) Prerequisite: 2631-32 or equivalent or consent of instructor. Must be taken in sequence.


PERIAN

Asian Studies 2731-32 Elementary Persian (4, 4) Taped language program. Must be taken in sequence.

Asian Studies 3731-32 Intermediate Persian (4, 4) Taped language program. Prerequisites: 2731-32 or equivalent or consent of instructor. Must be taken in sequence.

Approved Area Courses

(a) Art, Asian Culture, Literature, and Music

Art 3770 Art of Indian Asia (4)

Art 3776 Chinese Art (4)

Art 3777 Japanese Art (4)

Asian Studies 3310 Indian Culture (4)

Asian Studies 3320 Chinese Culture (4)

Asian Studies 3330 Japanese Culture (4)

Asian Studies 3340 Islamic Culture (4)

Arabic 3610 Islamic Literature in English Translation (4)

Asian Studies 3650-60 Japanese Literature in English Translation (4)

Asian Studies 4010-20-30 Readings in Asian Literature (4, 4, 4)

Spanish 4050-60-70 Hispano-Arabic Literature and Culture (3, 3, 3)

Music 4260 Introduction to Ethnomusicology (3)

(b) Economics, Geography, History, and Political Science

Economics 4232 The Political Economy of Asian Development (3)

Geography 3870 Geography of Asia (4)

History 3790-30 History of the Middle East (3, 3)

History 3795 Contemporary Middle East (4)

History 3800 North Africa since 1830 (3)

History 3810-20-30 History of East Asia (3, 3, 3)

History 4791 Modernization of the Middle East (3)

History 4792 Historical Writers in Islamic History (3)

History 4811-21 History of Japan (4, 4)

History 4870 Cultural History of China (3)

History 4880 History of Modern China (3)

History 4890 History of Contemporary China (3)

Political Science 3621-22 Politics of Asian States (4, 4)

Political Science 3641 Government and Politics of Middle East and North Africa (4)

Political Science 3795 Contemporary Middle East (4)

Anthropology, Philosophy, Religious Studies, and Sociology

Anthropology 3510 Peoples and Cultures of Mainland Asia (3)

Anthropology 4510 Peoples of China II: Chinese Society after 1839 (3)

Anthropology 4570 Peoples of Southeast Asia (3)

Anthropology 4590 Peoples of Japan (3)

Philosophy 3650 Philosophy and Religion in India (4)

Philosophy 3660 Buddhist Philosophy and Religion (4)

Philosophy 3671 Religion and Philosophy in China (4)

Religious Studies 3650 Philosophy and Religion in India (4)

Religious Studies 3660 Buddhist Philosophy and Religion (4)

Religious Studies 3671 Religion and Philosophy in China (4)

Religious Studies 3672 Religion and Society in Japan (4)

Religious Studies 3680 Islam (4)

Religious Studies 3760 Eastern Religions and Western Thought (3)

Religious Studies 3770 Zen Buddhism (3)

Religious Studies 4670 Topics in Eastern Religions (4)

Religious Studies 4960 Tradition, Change and Modernity in Asia (4)

Sociology 3672 Religion and Society in Japan (4)

Sociology 4960 Tradition, Change and Modernity in Asia (4)
Black Studies (195)

The concentration in Black studies and the minor in Black studies offer in-class, independent, and off-campus study to foster knowledge of the Black experience through a traditional academic approach as well as experiential learning. Black Studies 2010-20 are prerequisites to the concentration which consists of 36 hours from the Black Studies curriculum. A minimum of 24 hours must be in upper-division credit. Every student's program must include some individualized work under Black Studies 4102, 4103, and 4310, the nature of which should be negotiated with the program director. A maximum of 8 hours in 4102 and 4103 combined can be applied to a major and a maximum of 4 hours in 4102 and 4103 combined can be applied to a minor. In addition, courses from at least two other departments must be selected.

For further information consult the coordinator of the Black Studies Committee, Mr. Marvin Peek.

1510-20 Elementary Swahili (4, 4) Taped language program. Must be taken in sequence.

2010-20 Introduction to Black Studies (4, 4)

3140-50-60 Directed Readings in Black Studies (1, 1, 1) Designed for students who are interested in doing intensive reading in some area of Black studies which is defined by the student and the instructor. Prereq: 2010 (or 2020) and consent of instructor.

3330 Prejudice and Racism in the United States (4) (Same as Sociology 3330.)

3340 Sociology of Poverty and Inequality (4) (Same as Sociology 3340.)

3490 African Religions (4) (Same as Religious Studies and Anthropology 3490.)

3550 Religion and Racism in America (4) (Same as Religious Studies 3550.)

3680 Black Religion in America (4) (Same as Religious Studies 3680.)

3630-40 The Education of Black People (4, 4) Sequence will trace, analyze and interpret educational systems established for and by Blacks. Special emphasis will be given to colonial experience and the Washington-DoBois controversy in 3630; 3640 will deal with present urban educational problems of Blacks. Recent proposed remedies and solutions as integration, compensatory programs, decentralization, voucher systems; Black Studies and Freedom Schools will be discussed. Sociology 2010-20, History 1950-60 recommended. Prereq: Consent of instructor.

4101 Foreign Study (1-16) See page 187.

4102 Off-Campus Study (1-16) See page 187.

4103 Independent Study (1-16) See page 187.

4200 Senior Seminar on Pan-Africanism (4) Explores concepts and philosophers of Pan-Africanism and implication of this ideology for various societal institutions.

4300 Resource Materials in Black Studies (4) Introduction to basic references such as bibliographies, indices, and listings of audiovisuals in Afro-American history, African history, and children's literature. Prereq: 2010 or 2020 or consent of instructor.

4310 Research in Black Studies (4) Deals with Black experience and research process.

4500 Current Issues and Topics in Black Studies (3) Seeks to improve or involve a problem in issues in area of Black studies. Content and credit determined by instructor. May be repeated. Maximum credit 12 hrs.

4810 Afro-American Families (3) (Same as Child and Family Studies 4810.)


4880 Afro-American Psychology (3) (Same as Psychology 4880.)

Approved Area Courses

Anthropology 3530 Peoples and Cultures of Africa (3)

Anthropology 3930 Biology of the Races of Man (3)

Art 2725 Black Art (4)

CFS 4310 The Afro-American Family (3)

English 2540 The Literature of Black America (4)

English 4610-20-30 Black Literature (3, 3, 3)

Geography 3830 Geography of Africa (3)

History 1950-60 Afro-American History: An Introduction (4, 4)

History 2950 Introduction to Afro-American History (3)

History 4950-60 The Negro in American History (3, 3)

Music 3350 Introduction to Afro-American Music (4)

Music 4270 Evolution of Jazz (3)

Political Science 3615-16 Black Africa: The Politics of Change and Stability (4, 4)

Political Science 3555 Minority Group Politics in the U.S. (4)

Psychology 4880 Afro-American Psychology (4)

Religious Studies 3550 Religion and Racism in America (4)

Religious Studies 3560 Black Religion in America (4)

Sociology 3330 Race, Class, and Power (4)

Sociology 3340 Sociology of Poverty and Inequality (4)

Sociology 4820 American Minority Ethnic Groups (4)

Speech 4582 Black Rhetoric (4)

Recommendations for the concentration and the minor:

(a) Those with a concentration in Black Studies are encouraged to take a second major, with which an individually designed program in Black studies can be correlated.

(b) Students should seek academic advising from the Chairperson of Black Studies for courses for the concentration or the minor which relate to career plans, preparation for graduate study, and relationship to the second major.

(c) Those with a concentration and a minor are strongly encouraged to combine classroom and experiential learning through a careful selection of courses, e.g., Human Services 4400 and/or Black Studies 4102.

Comparative Literature (260)

A concentration in comparative literature consists of 36 hours including Comparative Literature 4010, 4012-22-32, 9 hours of literature in a foreign language in courses numbered 3000 and above, and one classics course selected from Classics 4010, 4230, 4510. The remaining twelve hours should include literature courses, either in English or in a foreign language, numbered 3000 and above, from at least two of the following departments: English, Germanic and Slavic Languages, Religious Studies, Romance Languages (certain courses in Philosophy and Speech and Theatre may be substituted with the approval of the chairperson of the Comparative Literature Program). Students concentrating in comparative literature are strongly encouraged to acquire a working knowledge of a second foreign language, especially if they have the opportunity to pursue comparative literature on the graduate level.

A minor in comparative literature consists of 24 hours including Comparative Literature 4010, two courses from Comparative Literature 4010-22-32, 6 hours of literature in a foreign language in courses numbered 3000 and above, and 9 hours of literature courses numbered 3000 and above, either in English or in a foreign language, from at least two of the following departments: Classics (4010, 4230, 4510), English, Germanic and Slavic Languages, Religious Studies, and Romance Languages (certain courses in Philosophy or Speech and Theatre may be substituted with the approval of the Comparative Literature Program). Minors in comparative literature are strongly encouraged to continue their study of a foreign language beyond the minimum requirement.

For further information, consult the Chairperson of the Comparative Literature Committee, Dr. Harry C. Rutledge.

2010 Introduction to Comparative Literature (4) Basic knowledge, techniques, and sources necessary to compare literatures of various cultures, ages, and nations.

3236 Special Themes in Literature (3, 3) (Same as English 3236-37)

4010 Methodology of Comparative Literature (3) Research and writing of comparative literary studies. Major project will be preparation of seminar paper in comparative literature. Prereq: 2010 and one course from 4012-22-32 or consent of instructor.

4012-22-32 Special Topics in Comparative Literature (3, 3, 3) Content varies; may be repeated for credit.

5012 Comparative Theories of Literature (3)

5022 Approaches in Comparative Literature (3)

5032 Studies in Comparative Literature (3)

Approved Area Courses

Classics 3210-20-30 Greek and Roman Mythology (3, 3, 3)

Classics 4010 Greek Drama in English Translation (3)

Classics 4510 Selected Reading in Latin Literature in Translation (3)

English 3411-12-20-30 Modern Drama (3, 3, 3, 3)

English 3370 Literature of the English Bible (3)

English 3910-20-30 Comparative Literature (3, 3, 3, 3)

English 4720 Folklore (3)
English 4730 Popular Ballad (3)

English 4950 Approaches to Literature (3)

English 5860 Introduction to Literary Research (3)

German 3210-20-30 Masterpieces of German Literature in English Translation (3, 3, 3)

German 4030 German Drama in English Translation (3)

German 4040 The Modern German Novel in English Translation (3)

German 4050 The Faust Legend (3)

Russian 3210-20-30 Survey of Russian Literature in English Translation (3, 3, 3)

Romance Languages 4010 Masterpieces of French Literature in English Translation (3)

Romance Languages 4020 Masterpieces of French Drama in English Translation (3)

Romance Languages 4030 Masterpieces of Spanish Literature in English Translation (3)

Romance Languages 4040 Masterpieces of Spanish Drama in English Translation (3)

Romance Languages 4050-60-70 Dante and Medieval Culture (3, 3, 3)

Ancient Mediterranean Civilizations

The concentration in Ancient Mediterranean Civilizations consists of Classics 2510, Classics 2520, Religious Studies 2611, and 28 additional hours from the following list, distributed in such a way that no more than 20 hours are in any one of the three divisions:

(a) Ancient Near Eastern Cultures: History 3751, 3752; Religious Studies 3110, 3120, 4210.

(b) Greek Culture: Classics 3210, 3220, 3310, 3320, 3340, 3350, 4010, 4220 (where applicable), 4230 (where applicable); History 3760; Philosophy 3111, 4410, 4420; Political Science 3801.

(c) Roman Culture: Classics 3320, 3330, 3340, 4220 (where applicable), 4510; History 3770; Religious Studies 3311-12, 3330, 4310, 4640. Courses of variable content, topics courses, reading and research, off-campus, or foreign study in the departments of Art, Classics, History, Philosophy, or Religious Studies can be applied to the three divisions as appropriate.

Students are encouraged to satisfy the Language, Literature, and Arts Triad requirement with Greek, Latin, or Hebrew in either Option I or Option II. Upper-division courses in these languages may be applied to the appropriate division listed above.

For further information, consult Dr. H.C. Rutledge (Classics) or Dr. W.L. Humphreys (Religious Studies).

Latin American Studies (600)

Concentration consists of 36 hours including Spanish 3710-20 or Portuguese 3510-20, History 3870-80-90, Political Science 3625-26, and Geography 3800 or 3790 and 7 hours of acceptable elective courses in any of the participating departments or in the Latin American studies sequence 2510-20 (4, 4) or Independent Research 4010.

Two years of Spanish or Portuguese or a practical working knowledge acquired independently are a prerequisite. Minor: Consists of 24 quarter hours selected from Geography 3800 or 3790, History 3870-80-90, Political Science 3625-26, and Spanish 3710-20 or Portuguese 3510-20, and the Latin American studies sequence 2510-20 or Independent Research 4010.

For further information, consult the chairman of the Latin American Studies Committee, Dr. H.E. Lewald.

2510-20 Introduction to Latin American Studies (4, 4) Introduction to societies of Latin America with special emphasis on dominant culture patterns, social changes, and impact of nationalism. 2510—Pre-Colonial and Colonial periods through Independence era; 2520—Latter 19th century and the Modern period.

4010 Independent Research in Latin American Studies (3-9) Directed research in any topic fully supported by the student. May be directed by the Latin American Studies Committee and directed by a faculty member interested in the study of the Latin American area. Credit to be earned according to the scope and length of the project.

4970 Senior Seminar (3-4) Selected topics in Latin American studies. May be repeated with consent of instructor.

Linguistics (623)

This concentration offers a broad exposure to the various fields of linguistics (including historical, descriptive and theoretical linguistics) along with an opportunity to study areas where linguistics overlaps with other disciplines such as psycholinguistics, sociolinguistics, speech pathology and the like. It is designed to prepare a student for graduate work in linguistics or related areas, or to serve as a general survey of language and linguistics. It provides the additional possibility of emphasizing the teaching of English as a second language for the student interested in employment at the B.A. level. The requirements of this concentration are:

Corequisites
(a) A 3000-level sequence or its equivalent of a foreign language. (This can be accomplished by electing Option I of the Language, Literature and Arts section of the Triad requirements. The following languages offer sequences which fulfill Option I: French, German, Greek, Italian, Latin, Russian, Portuguese, Spanish.) By special permission of the Linguistics Committee, certain language-related courses may be substituted for a 3000-level sequence of the foreign language.
(b) Two quarters of a non-indo-European language to be selected from the following: Religious Studies 3141-51 (Hebrew); Arabic 2510-20; Asian Studies 2531-32 (Chinese); Asian Studies 2631-32 (Japanese).

Concentration
The concentration shall consist of 38 hours distributed as follows:
(a) 32 hours composed of: Audiology and Speech Pathology 3050; French, German, Russian, or Spanish 4250-60-70;

English 3330, 4430, 4440; Speech 4811; Linguistics 4020-30. (b) 6 hours of the following, selected in consultation with the Linguistics Committee: Anthropology 3800; Audiology and Speech Pathology 3200, 4650, 5651, 5790; Educational Psychology 3562-63; Special Education and Rehabilitation 5220, 5310-20-30; English 3340, 4450, 4460, 4471, 4481, 5150, 5170-80; German 4310-20, 4810-20-30, 5710-20-30; Linguistics 4000; Russian 4310-20-30; Philosophy 4630; Psychology 4660, 5660, 5360-70; French 4210-20-30, 5110-20-30; Spanish 4210-20-30, 5110-20-30.

(c) Other hours may be substituted in (b) at the discretion of the Linguistics Committee.

Minor
A minor in linguistics shall consist of 27 credit hours composed of 9 from section (b) of the major selected in consultation with the Linguistics Committee, and 18 hours as follows: Audiology and Speech Pathology 3050; Linguistics 4020-30; English 4430, French, German, Russian, or Spanish 4250-60.

NOTE: In addition to the above listed courses for the concentration and the minor there are occasionally offerings in the Honors Series. In graduate seminars which may be substituted for certain requirements subject to written approval of the Linguistics Committee and the Office of the Dean.

For further information consult the chairman of the program, Dr. Jeff Mellor.

4000 Topics in Linguistics (3) Content varies. May be repeated. Maximum 9 hrs credit.

4020-30 Historical Linguistics, Neogrammarian School, and Growth of Structuralism (3, 3) 4020—Traces development of scientific approach to linguistics from Jacob Grimm and Franz Bopp through 19th century. 4030—Traces change in linguistic interest brought about by Saussure's Course in General Linguistics.

4471-81 English as a Second or Foreign Language (3, 3) (Same as English 4471-81.)

Medieval Studies (674)

A concentration in Medieval studies focuses upon culture and society from the collapse of the Roman Empire to the sixteenth century. Such a concentration offers the opportunity to deepen one's self-awareness and broaden one's view of the range of human possibilities by studying a very different and remote culture—its conditions of life, social and political institutions, values and ideals, and modes of perception and expression. A concentration in Medieval studies consists of Medieval Studies 2010 and 2010 and 28 hours of upper-division courses concerned primarily with the Medieval experience, divided among the following three categories: (1) history, philosophy, political science, and religious studies; (2) language and literature; (3) the arts—history of art, architecture, music, and speech and theatre. Courses should not be selected at random but should either form a related set of courses, or example, courses in the literature and history of Medieval England or Italy, etc.), or should
revolve around a particular discipline, or two closely-related disciplines (for example, courses in the history of art and architecture). A minor in Medieval studies consists of Medieval Studies 2010 and 4010 and 16 additional hours distributed among the categories listed above for the major. Each student's program, major or minor, must be approved in advance by the Medieval Studies Coordinating Committee, chairperson Dr. Thomas Heffernan.

It is strongly recommended that students selecting the Medieval studies concentration choose a foreign language option for the Triad requirement (Options 1 or 2). Latin is the most appropriate language for students and is essential for those who plan to continue their studies in graduate school. In addition, students planning to go on to graduate school are strongly advised to supplement their Medieval studies concentration with extensive work in one of the traditional disciplines.

2010 Medieval Civilization (4) Introduction to basic themes in medieval experience, approached from interdisciplinary points of view and including philosophy and religion, art and architecture, language and literature, social and political history.

4010 Seminar in Medieval Studies (4) Interdisciplinary treatment of selected topics.

Upper-division courses for the concentration in Medieval studies may be chosen from the list of courses below.

Category #1

History, Philosophy, Political Science and Religious Studies.

History 3061 History of Western Religious Thought and Institutions (4)

History 3411 Renaissance (3)

History 3710 History of Germany (3)

History 3780 History of Middle East (3)

History 4011 European History Colloquium (3) (when subject is part of medieval culture and society)

History 4500 History of Medieval England (3)

History 4710-20-30 Medieval History (3, 3, 3)

Philosophy 4430 Medieval Philosophy (4)

Political Science 3802 Studies in Political Thought (4)

Religious Studies 3061 History of Western Religious Thought and Institutions (4)

Religious Studies 3411 Renaissance and Reformation (4)

Religious Studies 3713 Religion in the Middle Ages

Religious Studies 4610 Topics in Western Religious Thought and Institutions (4) (when subject is part of medieval culture and society)

Category #2 Language and Literature

Classics 4310 Selected Reading from Latin Literature (3) (readings in Latin)

Comparative Literature 4012-22-32 Special Topics in Comparative Literature (3, 3, 3) (when subject is part of Medieval Studies Coordinating Committee

Comparative Literature 4050-60-70 Dante and Medieval Culture (3, 3, 3)

English 4410 Introduction to Study of English Language (3) (no language requirement)

English 4420 History of English Language (3) (no prerequisites)

English 4910-20 Chaucer (3, 3) (readings in Middle English)

French 3210 French Literature in English Translation (3)

French 4350-60-70 Medieval French Literature (3, 3, 3) (readings in French)

French 4410 French Civilization (3) (readings in French)

German 3210 German Literature in English Translation (3-4)

German 3240 Old Norse Literature in English Translation (3)

German 4310 History of German Language (3) (readings in German)

Italian 4010 Italian Drama in English Translation (3) (or in Italian)

Italian 4050-60-70 Dante and Medieval Culture (3, 3, 3) (readings in English or Italian)

Italian 4330 History of Italian Language (3) (readings in Italian)

Spanish 4050-60-70 Hispano-Arabic Literature and Culture (3, 3, 3) (in English translation)

Category #3 The Arts

Architecture 4130 Seminar in Medieval Architecture (4)

Art 3704 History of Medieval Art (4)

Art 3705 Northern European Painting, 1350-1600 (4)

Art 3715 Early Italian Renaissance Art, 1300-1500 (4)

Music 4201 Independent Study in Music History and Literature (1-3) (when subject is part of medieval culture and society)

Music 4280 The Mass to 1600 (3)

Music 4290 Gregorian Chant (3)

Theatre 3252 History of the Theatre (4)

Russian and East European Studies (887)

There are two approaches for the student to take in designing a program with a concentration in Russian and East European Studies.

Track I is designed for students whose interest is in a career in the academic world or in some branch of government service. Prerequisites to this track are Russian 2510-20 and 2640-50. The track consists of Economics 4000; Geography 3880; six hours from History 3470-80-90, 4470, 4480, and 4490; Political Science 4815 and four hours from Political Science 3631-32, 3715; Russian 3510-20 and 3 hours from 3610-20-30; and six hours from Russian 3210-20-21-30, 3240, 3250, 3260.

Track II is designed for students whose interest is in a career in the world of international business and/or finance specifically oriented toward trade with the Soviet Union and Eastern Europe. Prerequisites to this track are Russian 2510-20 and 2640-50. The track consists of Economics 3210, 4000, and 4230; three hours from History 3470-80-90 and three hours from History 4480, 4490, or Geography 3880; Political Science 4815 and four hours from 3631-32, 3715; Russian 3510-20 and 3 hours from 3610-20-30; Marketing 4230; and Finance 4420.

For further information, consult the chairperson of the Russian and East European Studies Committee, Dr. Donald Fiene.

4010 Selected Topics in Russian and East European Studies (3) An interdisciplinary seminar on a selected topic using a comparative approach.

Urban Studies (985)

A concentration in urban studies consists of 40 quarter hours, including Urban Studies 2500 and 3000, at least 4 hours of Urban Studies 4000, and 28 hours from the urban studies curriculum provided below. The urban studies minor consists of 24 quarter hours, including Urban Studies 2500 and 3000 plus 16 hours from the urban studies curriculum provided below. For further information consult the chairperson of the Urban Studies Committee, Dr. Samuel Wallace.

2500 Interdisciplinary Urban Studies (4) Fundamental perspectives of various disciplines toward the city, urbanism as a way of life and urbanization as an ongoing process. Stresses the multidimensional nature of urban studies.

3000 Selected Topics in Urban Studies (4) May be repeated with consent of the committee. Maximum 12 credits.

4000 Directed Field Work (1-16) Participant observation and other directed field research in selected sites and organizations. May be done in a concentrated manner, such as a summer, or over the course of an academic year. Minimum of four credits required for a concentration in urban studies. May be repeated. Maximum 16 hrs credit.

Urban Studies Curriculum:

For the concentration and minor, courses may be selected to fill the respective requirements from the following:

Anthropology:

3450 Community Studies in Complex Culture (3)

4440 Urban Anthropology (3)

Architecture:

2000 Man-Environment Systems (4)

3930 Behavioral Approaches to Environmental Design (6)

4900 Aspects of Urban Environment (4)

Geography:

3000 Man, Location, and Behavior (4)

3430 Urban Geography (4)

History:

4670 Cities and Urbanization in American History (4)

4740 The City in Europe (3)

Planning:

4100 Introduction to Planning (3)

Political Science:

3750 The Urban Politic (4)

3760 Urban Policy Process (4)

Real Estate and Urban Development:

3810 Principles of Real Estate and Urban Development (3)

4120 Urban Growth and Land Use (3)

4130 Problems of Urban Development (3)

Sociology:

3410 Urban Environment (4)

3420 Urban Problems (4)

4330 Urban Ecology (4)

4530 Community Organization (4)

Women’s Studies (944)

Minor: Consists of Women’s Studies 2010-20 and 16 hours of appropriate
courses numbered 3000 or above. Supporting courses are drawn from several departments and colleges on the UTK campus. A list of available courses will be published annually by the Women's Studies Committee. For further information consult the chairperson of Women's Studies, Dr. Suzanne Kurth.

2010-20 Women's Studies (4, 4) Explores basic knowledge and sources necessary to understand current and past societal experiences of women. 2010 utilizes perspectives of humanities; 2020 employs that of social sciences.

4000 Topics in Women's Studies (4)

Cultural Studies (270)

4000 Selected Interdisciplinary Cultural Topics (1-12) Acceptable for credit in any cultural studies concentration or minor with the consent of the director of cultural studies and the respective chairperson. May be repeated for credit up to a maximum of 12 hrs.

4101 Foreign Study (1-16) Acceptable for credit in any cultural studies concentration or minor except Black studies. Registration by consent of director of cultural studies and the respective chairperson. See page 199.

4102 Off-Campus Study (1-16) Acceptable for credit in any cultural studies concentration or minor except Black studies. Registration by consent of director of cultural studies and respective chairperson. See page 199.

4103 Independent Study (1-16) Acceptable for credit in any cultural studies concentration or minor except Black studies. Registration by consent of director of cultural studies and the respective chairperson. See page 199.

GRADUATE

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

Ecology (278)

J. Frank McCormick, Director.

Basic Faculty:


The graduate program in ecology offers Master of Science and the Doctor of Philosophy degrees. This interdepartmental 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 and the Tennessee Valley Authority provide advisers and research facilities. The Great Smoky Mountains, Cumberland Plateau, valley and ridge topography, TVA lakes and wild rivers provide locally a spectrum of natural habitats and consequent biological diversity which is truly unique. In addition, faculty research programs provide opportunities for student research elsewhere on this continent and abroad.

ADMISSION

Requirements for admission to this program are: (1) admission to the Graduate School of The University of Tennessee; (2) at least 12 quarter hours of college chemistry, 9 quarter hours of college mathematics, and 4 quarter hours of ecology at the upper-division level. Candidates for the doctoral degree are expected to take the Graduate Record Examination.

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, 400 10th Street, University of Tennessee, Knoxville, Tennessee 37916.

COURSES ACCEPTABLE IN PROGRAM

Agricultural Biology

4010 Biology of Soil Microorganisms (4)

Agricultural Economics

4330 Land Economics (3)

5420 Advanced Land Economics (3)

Anthropology

4360 Field Work in Physical Anthropology (3-9)

4640 Zooarchaeology (3)

4960 Primate Paleontology (3)

4970 Human Paleontology (4)

5970 Emergence and Early Evolution of Man (3)

Botany

4310 Plant Ecology (4)

5340 Plant Geography (4)

5350 Analysis of Plant Communities (4)

5510-20-30 Systems Ecology (3, 3, 3)

5830 Field Methods in Plant Ecology (4)

6320 Ecosystems of the World (3)

Ecology

5000 Thesis

5100 Special Problems in Ecology (1-3)

5210-20-30 Principles of Ecology (2, 2, 2)

5310 Ecology for Planners and Engineers (3)

5320 Implementation of Environmental Policy (3)

5330 Marine Ecology (4)

5610 Environmental Toxicology (3)

5640 Techniques in Environmental Toxicology (2)

6000 Doctoral Research and Dissertation

6100 Special Topics in Ecology (3)

6110 Seminar in Animal Behavior (2)

6120 Seminar in Aquatic Ecology (2)

6130 Seminar in Physiological Ecology (2)

6140 Seminar in Community Ecology (2)

6150 Seminar in Radiation Ecology (2)

6160 Seminar in Systems Ecology (2)

Economics

4260 Economics of Resources and Environmental Policy (3)

Environmental Engineering

4530 Sanitary Engineering Laboratory (3)

4600 Solid Waste Management (3)

4700 Air Pollution-Air Resources Management (3)

5503 Advanced Sanitary Engineering Laboratory (3)

5700 Planning and Air Pollution Control (3)

5710 Air Pollution Control Engineering (3)

Forestry

5220 Seminar in Forest Tree Biology (3)

5240 Seminar in Forest Genetics (3)

Geography

4720 Data Mapping (4)

4740 Remote Sensing: Types and Applications (4)

5550 Topics in Geography of Land-Surface System (3)

5610 Topics in Climatology (4)

5740 Advanced Topics in Remote Sensing (3)

Geology

4230 Paleocology (4)

4240 Paleobotany (4)

4510 Principles of Geomorphology (4)

5290 Quaternary Problems (4)

5915 Regional Geomorphology (4)

Microbiology

5829 Experimental Microbial Ecology (3)

Nuclear Engineering

5210 System Dynamics (3)

Philosophy

4710 Philosophy of Natural Science (4)

5550-60 Philosophy of Science (4, 4)

6550 Seminar in Philosophy of Science (4)

Plant and Soil Science

4320 Soil Formation, Morphology, and Classification (4)

5240 Soil Productivity and Management (3)

5250 Pedology (4)

5810 Crop Climatology (4)

5820 Advanced Crop Physiology and Ecology (4)

Psychology

4900 Aspects of Urban Environment (4)

5750 Ethological Psychology (3)

Sociology

4110 Population Problems (4)
Economics (283)

See faculty list, page 90.

UNDERGRADUATE

The program in economics combines a broad liberal education with the rigorous study of current issues of the day such as employment, inflation, poverty, wealth, and the benefits and costs of economic growth.

Courses offered in the Department of Economics of the College of Business Administration provide opportunity for a major or minor in economics in the College of Liberal Arts. See page 90 for description of the courses available.

Requirements for a major in economics consist of: (1) Economics 2110, 2120, and 2130 or equivalent honors courses, and (2) a minimum of 33 additional hours in upper-division economics courses. Economics 3110 (or the sequence 3111 and 3112) plus 3120 are required as part of the upper-division work and should be taken as early in the upper division program as possible. A minor consists of (1) Economics 2110, 2120, 2130 and (2) 15 additional hours in economics at the upper-division level. Minors are encouraged to include Economics 3110 and 3120.

In addition, certification to teach economics in secondary schools is available. Students with such an interest should consult the Certification Clerk, Room 212, Claxton Education Building as early in their program as possible to determine the appropriate requirements.

GRADUATE

See pages 89 and 90 in the College of Business Administration. The department offers the following degrees: M.A., MACT, M.S. and Ph.D. Also, the MBA degree with a concentration in economics is offered.

English (339)

Professors:
J.B. Trachten (Head), Ph.D. Princeton; P.G. Adams, Ph.D. Texas; E.W. Breton, Ph.D. Illinois; K. Curry, Ph.D. Yale; R.B. Davis (Emeritus); Drake, Jr., Ph.D. Yale; J.H. Fisher, Ph.D. Pennsylvania; J.A. Hansen (Emeritus), Ph.D. Yale; R.M. Kelly, Ph.D. Duke; K. Knoblocher (Emeritus), Ph.D. Yale; B.J. Leggett, Ph.D. Florida; F.D. Miller (Emeritus) (Virginia); R.E. Parker (Emeritus), Ph.D. California (Berkeley); J.E. Reese (Chancellor), Ph.D. Kentucky; N.J. Sanderson, Ph.D. Shakespeare Institute (Stratford-on-Avon); D.J. Schneider, Ph.D. Northwestern; P.L. Soper (Emeritus), Ph.D. Cornell; H.E. Spivey (Emeritus), Ph.D. North Carolina; B.T. Stewart, Ph.D. Northwestern; E.W. Stockton (Emeritus), Ph.D. Harvard; R.H. Walker, M.A. Texas; T.V. Wheeler, Ph.D. North Carolina; J.M. White, M.A. Cambridge; N. Wright, Ph.D. Yale; M.A. Oregon; P.A. Tschanz, M.A. New Mexico State.

Associate Professors:

Assistant Professors:
J.M. Armstead, Ph.D. Duke; D.R. Cox, Ph.D. Missouri; D.F. Grafton, Ph.D. Yale; N.M. Goslee, Ph.D. Yale; T.J.A. Heffernan, Ph.D. Cambridge; M.A. Lofaro, Ph.D. Providence; O.I. McIntosh, Ph.D. Michigan; V.C. Martin, Ph.D. Pennsylvania; M. Pryse, Ph.D. California (Santa Cruz); M.P. Richards, Ph.D. Wisconsin.

Instructors:
P.S. Adams, M.A. Tennessee; E.D. Badgett, M.A. Tennessee; E.W. Bare, M.A. East Tennessee State; B. Coughan, M.A. Marquette; W.J. Curtis, M.A. Tennessee; K.S. Feerick, M.S. Columbia; L.B. Ferrell, M.A. Mississippi State; L.P. Fuller, M.A. Tennessee; D.R. Goswami, M.A. Clemson; P.G. Hammond, M.A. Tennessee; C.A. Iwos; N.V. Lee, M.A. Peabody; M.S. Lewis, Ph.D. Tennessee; K.D. Moore, M.A. Michigan; E.D. Overbye, M.A. Virginia; M. Prihodka, Ph.D. Yale; M.A. Oregon.

John C. Hodges Professor.
*Alumni Distinguished Service Professor.

UNDERGRADUATE

General Prerequisites and Corequisites: English 1010-20-31/32/33 or the equivalents are prerequisites to all sophomore and upper-division courses in English. Two courses at the 2000 level are prerequisite to any of the three English concentrations. The equivalent of the second year (2000 level) of a foreign language is a corequisite for any of the three English concentrations.

English for Non-Majors: The department welcomes non-majors both in its sophomore introductions to literature (2510-2600) and also in its 3000-4000 level courses in language, literature, and creative writing. Of particular interest to students in other fields are Special Themes in Literature (3230-37), Forms of Popular Literature and Culture (3233-34), Literature and Other Fields (3230-31), and Technical Writing (4140-50). For prerequisites and other advice, consult specific course descriptions below and departmental advisers.

Majors: A minimum of 36 quarter hours is required in 3000-4000 level courses as indicated for the concentration below.

Certification in Literature: Twelve English courses at the 3000-4000 level including:

(1) English 3042;
(2) at least three courses in major figures or periods before 1800;
(3) at least two courses concerned with approaches other than literary history, such as literary forms or modes, theories of criticism, or other unifying approaches or ideas;
(4) a total of three courses in writing or the English language may be counted toward the literature concentration but may not be substituted for requirements 1, 2, or 3 above.

Concentration in Creative Writing: Twelve English courses at the 3000-4000 level including:

(1) one of the 3000-level creative writing courses followed by the corresponding 4000-level course in the same genre;
(2) four other courses in creative writing at either the 3000 or 4000 level;
(3) two courses in non-fiction writing, film, or English language;
(4) four courses in literature.

Concentration in the English Language: Twelve English courses at the 3000-4000 level including:

(1) English 3330;
(2) five courses in linguistics and the English language selected from among those offered by the English department and, with English adviser approval, from Psychology 3800, Anthropology 4560, or Linguistics 4030;
(3) two additional courses in language, literature, or writing;
(4) four courses in literature.

Individualized Program: The Director of Undergraduate Studies is empowered to approve individualized programs developed by students in consultation with their English advisers. These programs need not necessarily fulfill all of the requirements listed above.

Honor Programs: For students who qualify for this program, the English department offers individualized study in the senior year culminating in a senior thesis and a comprehensive examination. If the thesis and examination both receive grades of B or better, the student will be graduated with Honors. Interested students should consult their advisers or the Director of Undergraduate Studies.

Minor: An English minor consists of 24 hours at 2000 level or above, including at least 18 at the 3000-4000 level.

Certification for Teaching: Students planning to teach English in the public schools should consult the Certification Clerk, Room 212, Claxton Education Building.

Departmental Course Information: In the English Office, 316 McClung Tower, students can obtain a booklet describing current English courses in detail and listing the courses to be offered each quarter throughout the academic year. The booklet is available in advance of University timetables.

1010 English Composition (3)* Expository writing with emphasis on invention, organization, style, and revision; intensive study of essays for meaning and ways of expressing meaning; conferences on individual writing problems. Coreq: English 1019 for designated students. A, B, C, I, NC, W grading.

*Represents the Freshman English Sequence 1510-20.
1019 Writing Workshop (1) Required concurrently with 1010 of students selected on the basis of their placement scores and high school records for English 1010. Specific criteria of selection for 1019 will be published by the English department prior to fall quarter of each year. A study guide and group instruction in grammar, mechanics, sentence patterns, reading comprehension, and study and note-taking development. Graded S/N/C; a student taking 1019 concurrently with 1010 must pass 1010 to receive credit for 1019.

1020 English Composition (3) Analytical writing based on study of great themes in literature; practice in documentation; individual conferences. Prereq: 1010. Students receiving an A in 1020 may elect to take English 1020 for work in English composition with any 2000- or 3000-level writing course. A, B, C, I, NC, W grading.

1031-32-33 English Composition (3, 3, 3) Application of writing skills to areas of special interest. Study and practice of research writing; individual conferences. Prereq: 1010-20; any 1030-level course completes a year's work in English composition; no more than one may be taken for credit. 1031—Writing about modern literature. 1032—Writing about classical literature. 1033—Writing and Language; how we are influenced by verbal manipulation in education, politics, and business. A, B, C, I, NC, W grading.

1018-28-38 Honors: English Composition (3, 3, 3) Open only to those students elected on the basis of their placement score and high school record. Grading scale and work load the same as regular sequence. 1018—Expository writing based on study of great themes in literature. 1028—Introduction to research writing. 1038—Analytical and research writing based on study of great literature. Students receiving an A in 1018 or 1028 will complete a year's work in English composition by taking 1020 and one course on the 1030 level; students receiving a grade of A or B also receive credit and a grade of no less than B for 1028 and may continue into 1038; all students with A's and the better B's and consistent department have additional option of completing a year's work in English composition with any 2000- or 3000-level writing course. A, B, C, I, NC, W grading.

1211 Written and Oral English for Foreign Students (6) Rapid review of English grammatical structures and pronunciation with intensive oral, aural, and written drill. Required during the first quarter of residence of all foreign students (graduating undergraduates and transfer students) who are not excluded from the course on the basis of the English Proficiency Examination. Credit obtained for the full sequence of freshman composition with a grade of C or better at a college or university in the United States. Instructor must be accredited by a regional association. A, B, C, I, NC, W grading.

1221 Written and Oral English for Foreign Students (8) Emphasis on the more advanced structures of English grammar and writing. Required during the first quarter of residence of foreign students who want to take courses on the English Proficiency Examination demonstrate need for work in English composition, but not at the intensive level of English 1211. Required also of foreign students who complete 1211. A, B, C, I, NC, W grading.

1261 English Pronunciation for Foreign Students (3) Sounds and intonation patterns of American English. Emphasis on diction and will be used to improve student's ability to speak and understand English. May be repeated. Maximum 6 hrs. S/N. (Same as Audiology and Speech Pathology 1261.)

1431 English Composition for Foreign Students (3) Composition and reading for students whose native language is not English, writing based on reading and discussion with attention to use of library and to basic skills of documentation. Practice with typical writing assignments encountered by college students. English 1431 replaces English 1010 for undergraduate foreign students. Prereq: 1221 or recommendation based on English Proficiency Examination. A, B, C, I, NC, W grading.

1441 English Composition for Foreign Students (3) For students whose native language is not English, writing based on reading and discussion with attention to use of library and to basic skills of documentation. Practice with typical writing assignments encountered by college students. English 1441 replaces English 1010 for undergraduate foreign students. Prereq: 1341. A, B, C, I, NC, W grading.


2510-20 English Masterpieces (4, 4) 2510—The mid-eighteenth century. 2520—Since the mid-eighteenth century.

2530 American Masterpieces (4)

2540 The Literature of Black America (4) Poetry, fiction, drama. Emphasis on twentieth century.

2560-70-80 Literature of the Western World (4, 4, 4)

2560—Ancient and medieval. 2570—Renaissance through the eighteenth century. 2580—Nineteenth and twentieth centuries.

2640-60 English Culture (4, 4) 2640—Beginnings to the late eighteenth century. 2650—From the late eighteenth century to the present.

2680 Introduction to Drama (4) Study of selected plays to provide critical techniques necessary for understanding of drama.

2690 Introduction to Poetry (4) Study of selected poems to provide critical techniques necessary for reading of different types of poetry.

2690 Introduction to the Novel (4) Study of selected novels to provide critical tools necessary for judging longer works of fiction.

3010-20-30 American Literature (3, 3, 3) 3010—John Smith through Poe. 3020—Emerson through Mark Twain. 3030—Henry James to present.

3042 Colloquium in Literature (3) Introduction to methods and objectives of literary study; conferences to plan student's program in major.

3045 Introduction to Literary Criticism (3)

3070 Modern British Poetry (3) From Housman to Thomas and more recent poets.

3080 Modern American Poetry (3) From Robinson to Stevens and more recent poets.

3110-20-30 Romantic Poetry and Prose (3, 3, 3)


3135 Tennyson and His Successors (3) Includes such poetry as that by Pre-Raphaelites, humorists, and Decadents.

3136 Browning, Arnold, and Hopkins (3)

3150 Melville (3)

3160 The Short Story (3) British and Continental European, with emphasis on twentieth century.

3170 The American Short Story (3) From nineteenth-centuries to present, emphasis on twentieth century.

3210-20 English Literature and Culture of the Nineteenth Century (3, 3) Survey of literature dealing with leading movements in politics, science, religion, and the arts. 3210—1800 to 1835. 3220—1835 to 1900.

3230-31 Literature and Other Fields (3, 3) Content varies. Focus on religious, philosophical, psycho- logical, historical, or other pertinent aspects of literature. May be repeated with consent of department. Maximum credit 6 hrs each.

3233-34 Forms of Popular Literature and Culture (3, 3) Content varies. Detective fiction, science fiction, film, or other topics. May be repeated with consent of department. Maximum credit 6 hrs each. (Same as American Studies 3233-34.)

3236-37 Special Themes in Literature (3, 3) Content varies. The city, the frontier, the sea, the American West, western topics. May be repeated with consent of department. Maximum credit 6 hrs each. (Same as Comparative Literature 3236-37.)

3310 Women Writers in England and America (3) Emphasis upon the literary consciousness of women in the nineteenth and twentieth centuries.

3330 Introduction to Study of English Language (4)

3331 Cultural History of the English Language (3) Emphasizes influence of social and political forces in development of English pronunciation, vocabulary, and syntax.

3332 Modern English Grammar (3) Traditional, prescriptive approaches to English grammar, followed by intensive study of descriptive approaches of American structuralism and introduction to generative-transactional theory.

3360 Old and Middle English Literature in Translation (3) Major texts and genres of English literature from beginnings to 1500.

3411-12-20-30 Modern Drama (3, 3, 3) 3411— Consciousness to 1900. 3420—British. 3430—American. (Graduate credit normally limited to students in Speech and Theatre.

3440 Literature and Film (4) Aesthetic relationships, emphasis upon media comparison.

3450 Writing Fiction (3) Introduction to writing novels and short stories.

3470 Writing Poetry (3) Introduction to writing poetry.

3480 Writing Drama (3) Introduction to writing both one-act and full-length plays.

3510 Sixteenth-Century Prosy and Prose (3) More and Wyatt to Spenser.

3520 Elizabethan Drama (3) Marlowe, Jonson, and others.

3530 Jacobean Drama (3) Beaumont and Fletcher to Massinger and Shirley.

3560 Restoration and Eighteenth-Century Poetry (3) Emphasis upon Dryden and Pope.

3620 Restoration and Eighteenth-Century Drama (3) Dryden through Sheridan.

3630 Restoration and Eighteenth-Century Prose (3) Defoe, Addison, Steele, Swift, and others.

3670 Age of Johnson (3)

3710 Literature of English Bible (3) Types of Old Testament literature, excluding Wisdom literature. (Same as Religious Studies 3710.)

3711 Literature of the English Bible (3) Old Testament wisdom literature and types of New Testament literature. (Same as Religious Studies 3711.)

3721 Introduction to Folklore (3) Essential terms and concepts in modern folkloric-folk-life studies. Emphasis on North American materials: folklore, folk song, myth, legend, proverbs, riddles, superstitions, dance, games, and architecture.

3840-50 Writing of Non-Fiction Prose (3) Strategies of writing on personal and academic subjects. Discussion of student and professional writing. Conferences on individual student's goals and problems. Open to sophomores with instructor's consent. 3840—How to find, develop, and present an idea. 3850—How to convince a reader through logical and emotional appeals.

3860 Special Topics in Writing (3) Original writing integrated with reading, usually taught by professional author. Topics vary. May be repeated. Maximum 9 hrs credit.
recommended.

Minor: Eight hours in courses numbered at the 1000 or 2000 levels are recommended for an introduction to the minor which consists of 24 hours selected from courses at the 3000 and 4000 levels.

Students wishing to major or minor in geography are strongly urged to consult with a departmental undergraduate adviser. Through choices available within the structure of the major and by appropriate selection of electives outside the department, each student may develop a coherent program in accordance with specific interests and needs. Such programs might emphasize particular aspects of geography itself or might develop interdisciplinary themes such as natural environment and resources, urban and regional planning or the culture, history or economy of a particular area. A useful technical or vocational specialty program is available which emphasizes cartography and remote sensing.

Asian Studies. See Cultural Studies.

Latin American Studies. See Cultural Studies.

Russian and East European Studies. See Cultural Studies.

1610-20 Introduction to Geography (4, 4) Selected problems or situations of contemporary interest are explored with an emphasis on developing geographical points of view and techniques. Need not be taken in sequence. Not open to students who have taken 1110 and 1120, respectively.

1810-20 Geography of the Natural Environment (4, 4) Characteristics of processes on earth's surface and lower atmosphere; their interaction to produce world patterns of distinctive environments significant to man. Must be taken in sequence. Not open to students who have taken 1710.

2110-20-30 Economic Geography (4, 4, 4) The significance of location, pattern, and environment in economic activities. Emphasizes: 2110—agriculture; 2120—energy, minerals and manufacturing; 2130—transportation and trade. Need not be taken in sequence.

3000 Man, Location, and Behavior (4) Types of human spatial behavior, such as shopping patterns, commuting, residential mobility, trade, and recreation; consciousness, as they relate to distance, natural environment, and culture. Order and regularity in pattern of human use of earth's surface.


3430 Urban Geography (4) Concepts and theories concerning development and significance of systems of cities and internal morphology of cities. Not open to students who have taken 4660.

3450 Rural Geography (4) Geographical appraisal of rural areas of the United States, including small towns and urban fringes. Problems and potentials of rural America.

3490 Geography of Resources (4) Study of factors related to variations in resource availability from time to time and from place to place, with particular emphasis on petroleum and metallic resources.

3510 Meteorology (4) Introduction to dynamic atmosphere and resulting weather events. Nature of individual weather elements, their measurement and analysis over time and space.

3520 The Atmospheric System and Man (4) Overview of atmospheric systems leading to world patterns of climates. Role of climate in agriculture, architecture, human comfort, and economic activity.

3530 The Land-Surface System and Man (4) Nature and regional variations in relationships among surface, atmosphere, and surface energy resources. Man as evaluator and agent of change.

3600 Geography of Population (4) World population pattern; regional socio-economic characteristics and demographic trends; relationship to resource base.

3610 Political Geography (4) Importance of geographic factors for understanding political relationships within and between nations; spatial implications of political decision-making process; geography of administrative units.

3660 Cultural Geography (4) Basic concepts of culture; methods and background of cultural geography; world patterns of cultural phenomena.

3790 Geography of Middle America (4) Covers Mexico, Central America, and the West Indies. Not open to students who have taken 3740, 3770, or 3780.

3800 Geography of South America (4) Not open to students who have taken 3730, 3750, or 3760.

3810 Geography of Europe (4)

3840 Geography of Australia and Oceania (4) Survey of major physical, cultural and economic characteristics of countries of Australia, New Zealand, and of impact of western civilization on selected island groups of Southwest Pacific.

3870 Geography of Asia (4) A survey of the physical, cultural and economic characteristics of the countries of Asia, excluding the Soviet Union. Not open to students who have taken 3820, 3890 or 3890.

3880 Geography of the Soviet Union (4)

3910 Regional Geography of United States and Canada (4) Major physical, economic, and social distributions as they interrelate to give distinctive character to regions of United States and Canada.

3920 Geography of the American South (4) Geographical appraisal of southeastern United States, including physical environment and human resources. Origin and development of contemporary economic and cultural traits of the area.

3930 Geography of Tennessee (4)

3940 Geography of Appalachia (4) Interrelation of physical, economic, and social patterns to give distinctive character to the region and its parts, especially southern Appalachia. Appalachia in perspective in the current American scene.

4075 Geography of Transportation (4) Geographic examination of transportation systems, emphasizing transport of people on highways and by public facilities. Relating of these systems to changing geography of cities and urban hinterlands.

4100 Quantitative Methods in Geography (4) Geographic applications of statistical techniques, point pattern analysis, and analysis of areal units. Prereq: Mathematics 3000 or consent of instructor.

4101 Foreign Study (1-16) See page 187.

4102 Off-Campus Study (1-16) See page 187.

4103 Independent Study (1-16) See page 187.

4210 Problems in Geographic Method (4) Examples of problems and the approach to the geographic analysis and synthesis. Emphasis on character of geographic data, area sampling, generalization, classification, regionalization, and questions of scale.

4240 Historical Geography of the United States (4) Survey of changing human geography of United States during four centuries of settlement and development. Emphasis upon changing population patterns, development of agricultural regions and patterns of urban development. Not open to students who have taken 4250-60.

4510 Principles of Geomorphology (4) (Same as Geology 4510.)

4550 Geography of Soils (4) Soils as physical systems and their relationship to environments. Investigation of specific causes of soil formation in management of environmental systems.

4610 Industrial Geography (4) Factors affecting location of manufacturing activities, with emphasis on the United States. Prereq: 3410 or consent of instructor.

4630 Geography of Agriculture (4)

4710 Cartography (4) Map construction, map reproduction, and practice in map drawing.

4720 Data Mapping (4) Methods of representing spatial distributions by maps and graphs. Mappable data may include phenomena as diverse as birth rates, voting patterns, and air pollution levels. Prereq: Junior standing or consent of instructor.

4740 Remote Sensing: Types and Applications (4) Basic principles and uses of aerial photography and other remote sensing techniques. Emphasis upon value of various types of imagery for geographic interpretation and simple mapping. Prereq: Consent of instructor.

4750 Interactive Computer Graphics (3) (Same as Computer Science 4750 and Electrical Engineering 4750.)

4990 Proseminar in Geography (4) Overview of major themes in geography, especially trends over past 20 years. Designed for undergraduate majors and minors; not open to graduate students. Prereq: Completion of at least 12 hrs of major or minor requirements for geography.

GRADUATE

The general requirements for the master's and doctoral degrees are given in the Graduate Catalog.

5000 Thesis

5100 Colloquium in Geography (1)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5150 Introduction to Geographical Research (3)

5160 Research Design and Field Problems (4-6)

5170 Geographic Concept and Method (3)

5200 Special Problems in Geography (2-6)

5250 Topics in Historical Geography (3)

5260 Advanced Cultural Geography (3)

5310 Topics in Regional Geography of United States (3)

5320 Topics in the Geography of the American South

5410 Advanced Topics in Economic Geography (3)

5520 Advanced Urban Geography (3, 3)

5550 Topics in Geography of Land-Surface System (3)

5610 Topics in Climatology (3)

5710 Seminar in Geography (3)

5720 Topics in Quantitative Geography (3)

5740 Advanced Topics in Remote Sensing (3)

5915 Regional Geomorphology (4)

6000 Doctoral Research and Dissertation

6110-20 Seminar in Economic Geography (3, 3)

6220-30 Seminar in Urban Geography (3, 3)

6240-50 Seminar in Historical Geography (3, 3)

6260-70 Seminar in Cultural Geography (3, 3)

6310-20 Seminar in Rural Geography (3, 3)

6410-20 Seminar in Regional Geography of United States (3, 3)
Geological Sciences


Associate Professors: M. Clark, Ph.D.; Pennsylvania State; K. C. Misra, Ph.D.; Western Ontario.


The Department of Geological Sciences provides training for (1) those who plan a career as a professional geologist in industry, federal and state surveys, education or other fields which utilize earth scientists; and, (2) those who seek a general knowledge of geology and its relationships to the other sciences, engineering, business, law, and other disciplines.

The requirements set forth below are designed to provide geology majors with a broad base from which qualified students may proceed into advanced study in one or more of the branches of geology or related minor fields. Because a wide range of elective courses is available, it is essential that each student be guided in planning the program by a departmental adviser. A list of advisers is available in the departmental office.

UNDERGRADUATE

Major: Geology 1410, 1420, 1430 are prerequisites to a major which consists of Geology 3180, 3260, 3310, 3360, 3370, and at least 24 hours additionally in upper-division courses in geology chosen to include at least 12 hours from among the following courses: Geology 3510, 4110, 4115, 4230, 4510, and 4610. Geology 4310 and/or 4440 (or equivalent) are strongly recommended for students planning to become professional geologists.

Because of the interdisciplinary nature of geology and the prerequisites for advanced study, students who major in geology are required to take the following allied science and mathematics courses: Biology 1210-20, Chemistry 1110-20, Mathematics 1840-501, Physics 2210-20 or 2510 and 2310-20. It is recommended that students take additional courses beyond the elementary level in at least one of the above allied fields.

Minor: Geology 1410, 1420, 1430 are prerequisite to a minor which consists of at least 24 hours in courses numbered 2000 or above.

Geology (424)

1000 Frontiers in Earth and Planetary Sciences (4)
Recent developments in earth science of interest of the public. Designed for non-majors; treats popular topics such as discoveries on moon by Apollo missions, earthquake prediction, and drifting of continents.

1410-20 General Geology I, II (4, 4) 1410—Introduction to study of the earth, its composition, structure, and processes that change it. 1420—Emphasis on life and physical events through Mesozoic Era. Must be taken in sequence. 3 hrs and one 2-hr lab or field period.

1430 General Geology III (4) Continuation of 1410-20 sequence emphasizing the advent of human life and its interaction with geological factors and events. Prereq: 1420. 3 hrs and one 2-hr lab or field period.

2130 Geochronology of the Earth (4) Origin and evolution of continents, atmosphere, oceans and earth's inhabitants with emphasis on physical and chemical processes of the earth. Prereq: 1420. 3 hrs and 1 lab or field period.

2210 History of Life on Earth (4) Chronological account of animal and plant evolution since the earliest fossil remains and societies. Not intended for geology majors. 3 hrs and 1 lab or field period.


2610 Introductory Geology for Engineers (3) Materials and structures of the earth. For College of Engineering students only. 2 lectures and 1 lab or field period.

2710 Introductory Oceanography (4) Introduction to study of oceans including origin and development of ocean basins and physical and biological processes within ocean basins and their contained water and sediment masses. 1410 recommended.

3160 Introduction to Earth Materials (4) Study of minerals and rocks. Identification of both hand specimen and analytical methods of identification. Not available for credit to majors. Prereq: 1410. 2 lectures and 2 labs.

3180 Mineralogy (4) Introduction to crystallography and study of minerals. Laboratory includes hand specimen, chemical and X-ray methods of identification. Prereq: 1410, Chemistry 1110-20 or equivalent. 3 lectures and 1 lab.

3210-20 Invertebrate Paleontology (4, 4) Systematic review of important invertebrate fossil groups. 3210—Protists to Brachiopoda, including sponges, coelenterates, brachiopods, and conodonts. 3220—Hemichordata, including annelids, molluscs, arthropods and echinoderms. May be taken separately or in any order. Prereq: 3260; Biology 1210-20 or consent of instructor. 3 hrs and 1 lab or field period.

3250 Micropaleontology (4) Microscopic remains of animals and plants with special emphasis on stratigraphically important groups. Prereq: 3210 or consent of instructor. 3 hrs and 1 lab.

3260 Paleobiology (4) Introduction to principles and materials of paleontology as applied to interpretation of evolution. Prereq: 1420. 3 lectures and 1 lab or field period.

3270 Geological History of Land Organisms (4) Geological history and development of terrestrial biota and ecosystem with special emphasis on fossil record. Prereq: 3260; Botany 1020 or consent of instructor. 3 lectures and 1 lab or field period.

3310 Introductory Petrology (4) Introduction to classification and properties of igneous and metamorphic rocks, processes which produce them, and tectonic environments in which they form. Laboratory emphasizes both hand specimen and microscopic study of important rock types. Prereq: 3180. 3 lectures and 1 lab.

3330 Geology of East Tennessee (4) Lectures and field excursions. Prereq: 12 quarter hrs of geology and consent of instructor.

3360 Stratigraphy-Sedimentation (4) Introductory study of stratigraphic principles and practices and of sedimentary processes, with an emphasis on interpretation of depositional environments. Prereq: 1420 and 3180. 3 hrs and 1 lab or field period.

3370 Structural Geology (4) Introductory discussion of structures such as folds, faults, joints, cleavage, and primary structures. Laboratory work includes depth and thickness problems. Structure sections, structure contour maps, etc. Prereq: 1420, Mathematics 1840-50 or equivalent. 3 hrs and 1 lab.

3410 Principles of Ground Water Geology (3) Geological materials and processes affecting the occurrence and behavior of water. Not open to geology majors. 2 lectures and 1 lab. (Same as Water Resources Development 3410.)

3510 Introductory Environmental Geology (4) Geologic problems involving the processes, forms, and resources, and geologic parameters associated with their control and misuse. Prereq: 1420 or consent of instructor. 2 lectures and 2 lab or field periods.

3610 Quaternary Geology for Engineers (3) Erosional and depositional processes, landforms, groundwater. 2 lectures and 1 lab or field period. Prereq: 2810 or equivalent.

3701 Origin and Evolution of the Continents and Ocean Basins (4) Introductory study of origins and changes that have occurred in earth's crust with emphasis on modern concepts of continental drift and plate tectonics. Prereq: 1420.

4110 Principles of Economic Geology (4) Formations of mineral deposits. Prereq: 3180, 3370 or equivalent.

4115 Elementary Applied Geophysics (4) Basic principles of electrical, seismic, gravity and magnetic surveying. Recommended: 1420, Physics 2220 or 2320, 3210. 3 lectures and 1 lab.

4130 Sedimentology (4) Introduction to physical processes of sedimentation: transport of sediments and formation of sedimentary structures, river flow, waves, tides, and ocean circulation. Prereq: 3310. 3 lectures and 1 lab.

4230 Paleoclimatology (4) Principles of environmental analysis as applied to paleoclimatology and associated lithologies. Prereq: 3280 or consent of instructor. 3 hrs and 1 lab.

4240 Paleobotany (4) Survey of fossil record of plants with particular emphasis on (1) comparative morphology and evolutionary trends in major plant groups and (2) chronological succession and geographic distribution of fossil plants. Prereq: 1420 or 2210; Botany 3010-20 or consent of instructor. 3 hrs and 1 lab or field period. (Same as Botany 4240.)

4310 Geologic Mapping (4) Interpretation of maps and methods of geologic mapping. 2 lectures and 1 lab or field period. Prereq: 12 quarter hrs of geology.

4370 Tectonic Styles (4) Elements, habitats, and geophysiologic causes of basic tectonic style. Presentation of tectonic deformation are presented on maps, sections, aerial photographs and fabric diagrams. 3 lectures and 1 seminar or lab. Prereq: 3370 or consent of instructor.

4440 Field Geology (4) Five weeks' field course, first term summer quarter. Advanced undergraduates or first-year graduate students. Excludes study of entire time of students. A report is required, to be submitted no later than end of fall quarter. Prereq: 12 quarter hrs of geology and consent of instructor.
4460 Geologic Photography and Photogrammetry (4) Principles of terrestrial and aerial geologic photography, including photographic principles and practice, geometry of terrestrial and aerial photography, and image interpretation. Prereq: 3370 or consent of instructor. 3 lectures and 1 lab.

4510 Principles of Geomorphology (4) Gradational processes acting at earth's surface and landforms produced. Prereq: 1410 or consent of instructor. 3 hrs and 1 lab.

4550 Optical Mineralogy (4) Identification of non-opaque substances by immersion methods, using petrographic microscope.

4610 Principles of Geochemistry (4) Application of chemical principles to geologic problems. Emphasis on crystal chemistry and relation between basic atomic structure and distribution and behavior of elements in the earth's crust. Prereq: Chemistry 1110-20 or equivalent required. Recommended 3310.

4650 Mineral Phase Equilibria (3) Principles of phase chemistry and application of phase equilibria studies in rock-forming mineral systems as aid to understanding conditions of formation and modification of rocks. Prereq: 4610 or consent of instructor.

4710 Petrophysics (3) Fluid, heat, electric current and ionic flow through rock masses in a potential field. Stress-strain behavior of rock as a function of temperature and pressure. 3 lectures and 3 practicums per week. Prereq: 3310, Mathematics 1830, Physics 1330. Recommended: Mathematics 2610 and 2620.

4810 Special Problems in Geology (1-4) Prereq: Consent of instructor. May be repeated to a maximum of 4 hrs credit.

GRADUATE

The general requirements for master's and doctoral degree are given in the Graduate Catalog.

5000 Thesis

5050 Geochemistry of Ore Mineral Deposits (3)

5069 Experimental Geochemistry Laboratory (1-3)

5120 Geophysics—Gravity and Magnetic Methods (4)

5130 Geophysics—Seismic Exploration Methods (4)

5210-20-30 Special Problems in Geology (1-4, 1-4, 1-4)

5290 Quaternary Problems (4)

5310 Advanced Stratigraphy and Sedimentation (4)

5340 Seminar in Local Stratigraphy (1)

5350 Selected Topics in Geology (1)

5370 Mesofabric Analysis (4)

5460 Photogeologic Interpretation (4)

5470 Plate Tectonics and Orogeny (4)

5520 Igneous Petrology (4)

5530 Metamorphic Petrology (4)

5540 Terrigenous Clastic Sedimentary Petrology (4)

5550 Carbonate Sedimentology (4)

5620 Electron Microprobe and X-Ray Spectrographic Analysis: Theory and Application (4)

5630 X-Ray Diffraction: Theory and Application (4)

5640 Clay Mineralogy (4)

5650 Thermodynamics for Geologists (3)

5670 Geochemical Prospecting (3)

5710 Advanced Paleontology (4)

5750 Petrophysics (3)

5810 Geology of Fuels (4)

5820-30 Mineral Deposits (4, 4)

5840 Ore Microscopy (4)

5850 Regional Studies in Economic Geology (3)

5915 Regional Geomorphology (4)

6000 Doctoral Research and Dissertation

6110 Seminar in Stratigraphic Geology (3)

6210 Seminar in Paleontology (3)

6310 Seminar in Structural Geology (3)

6410 Seminar in Mineralogy (3)

6510 Seminar in Petrology (3)

6610 Seminar in Economic Geology (3)

6710 Seminar in Geochemistry (3)

6810 Seminar in Geomorphology (3)

German and Slavic Languages

Professors: H. Kratz (Head), Ph.D. Ohio State; J. E. Falen, Ph.D. Pennsylvania; W. Fuller, Ph.D. Wisconsin; E. T. Hankamer (Emeritus), Ph.D. Bonn (Germany); L. L. Hiller, Ph.D. Cornell; R. L. Nordseth (Emeritus), Ph.D. Ohio State; J. C. Osborne, Ph.D. Northwestern.

Associate Professors: N. A. Lauckner, Ph.D. Wisconsin; D. E. Lee, Ph.D. Stanford; M. P. Rici, Ph.D. Vanderbilt.

Assistant Professors: J. S. Elliott, Ph.D. Michigan; D. M. Fiene, Ph.D. Indiana; C. J. Mellor, Ph.D. Chicago; U. C. Roller, Ph.D. Connecticut.

Instructors: M. H. Harris, M.A. Illinois; J. M. Rasmussen, Diploma, City College, Tallin, Estonia.

UNDERGRADUATE

Placement Examination: Students who have had previous work in German or Russian either in high school or in another college should register for the course in which they would normally be placed. During the first week of the quarter a placement test will be given, and students will be advised if a change in registration is indicated.

Proficiency Examinations: Students who have acquired a knowledge of German or Russian through private study, tutoring, residence in foreign countries, or the like, should request a proficiency test. A student earning a grade of C or better on such a test will receive credit for a limited number of courses. Superior students are encouraged to proceed as rapidly as their achievement permits. Students who omit any course in a sequence may receive credit for it by passing a proficiency examination.

Foreign Study: Students are encouraged to study abroad. The department is prepared to recommend summer study programs and junior year abroad programs for students who are interested in foreign study. Credits from recognized foreign study programs can readily be transferred to UTK. For qualified students, the department also offers a German Study Abroad Program. See page 187. Students should consult the department before registering for the foreign study course.

German (433)

1110-20-30 Elementary German (3, 3, 3) Must be taken in sequence.

1510-20 Elementary German (4, 4) Must be taken in sequence.

1518-2518-28 Honors: Elementary and Intermediate German (5, 5, 5) 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. Upperclassmen must have a B average. A grade of C or above must be achieved in 1518 in order to continue with 2518. A student obtaining a grade of D or better in 1518 may continue with German 1520. This sequence is equivalent to 1510-20 or 1110-20-30 and 2110-20-30 and its completion allows the student to enter all 3000-level German courses.
4101 Foreign Study (1-16) See page 187.

4102 Off-Campus Study (1-16) See page 187.

4103 Independent Study (1-18) See page 187.

4110-20-30 Studies in Classical and Modern Writers (3, 3, 3) Content varies. May be repeated for credit with consent of department. Prereq: 9 hrs of 3000 courses (exclusive of 3010-20-30, or courses in English translation) or equivalent.

4140-50 Selected Topics in German Literature from 1750 to the Present (3, 3, 3) Prereq: 9 hrs of 3000 courses (exclusive of 3010-20-30, or courses in English translation) or equivalent.

4160 Studies in German Authors (3) Life and works of a single outstanding German literary figure. Content varies. May be repeated for credit.

4170 Theatrical German (1-3) Performance in one or more German plays. May be repeated for credit with consent of department.

4210-20-30 Studies in German Literary Types (3, 3, 3, 3) Linguistic change, protolanguages. Phonological and morphological change. Cultural, historical, sociological influences upon the development of language. Semantic change, Lexicography. All these topics copiously illustrated by selected examples from Indo-European languages. Prereq: 9 hrs of upper-division English, or 9 hrs of upper-division courses in a modern or ancient language (exclusive of German and French). 3010-20-30, courses in literature in translation, and general courses in Latin and Greek requiring no knowledge of these languages, or consent of department. (Same as Russian, French and Spanish 4260.)

4250 Introduction to Descriptive Linguistics (3) (Same as Russian, French and Spanish 4250.)

4260 Introduction to Historical and Comparative Linguistics (3) Lyric poetry. 4250—Drama. 4260—Narrative prose. Prereq: 9 hrs of 3000 courses (exclusive of 3010-20-30, 3210-20-30, 3310 or equivalent).

4500 Thesis

4501 Foreign Study (1-12)

4502 Off-Campus Study (1-12)

4503 Independent Study (1-12)

4510 Introduction to German Semantics (3)

5200 Proseminar (3)

5210-20-30 College Teaching of German (1, 1, 1)

5410-20-30 Medieval German Language and Literature (3, 3, 3)

5500 Studies in German Literature (3)

5510 German Humanism and Reformation (3)

5520 German Baroque Literature (3)

5530 The Enlightenment and the Rococo (3)

5540 German Classicism (3)

5550 Goethe's Faust (3)

5560 German Romanticism (3)

5570 German Realism and Naturalism (3)

5580 Modern German Literature (1889-1945) (3)

5590 Modern German Literature (1945-Present) (3)

5600 German Literary Theory and Criticism (3)

5610-20-30-40-50-60 Directed Readings in German Literature and Language (3, 3, 3, 3, 3, 3, 3)

5710 Introduction to Old Norse (3)

5720 Readings in Old Norse Prose (3)

5730 Readings in Old Norse Poetry (3)

6000 Doctoral Research and Dissertation

6100 Gothic (3)

6120-30 Old High German (3, 3)

6140 Old Saxon (3)

6210-20-30-40-50-60 Seminar in German Literature (3, 3, 3, 3, 3, 3, 3)

6310-20-30 Seminar in German and Germanic Philology (3, 3, 3)

Russian (886)

1510-20 Elementary Russian (4, 4) Must be taken in sequence.

1610-20 Elementary Serbo-Croatian (4, 4) Must be taken in sequence.

1710-20 Elementary Czech (4, 4) Must be taken in sequence.

2510-20 Intermediate Russian (4, 4) Must be taken in sequence.

2670-80 Intermediate Serbo-Croatian (4, 4) Must be taken in sequence.

2710-20 Intermediate Czech (4, 4) Must be taken in sequence.

3010-20-30 Studies in German for Graduate Students and Seniors (3, 3, 3) For graduate students preparing for language examinations and seniors desiring reading knowledge of a second foreign language. Prereq: 2 yrs of some foreign language in college or consent of department. Undergraduate credit only. No credit for students having completed 1510-20 or equivalent.

3510-20 Russian Composition and Conversation (4) Practice in writing and speaking; grammar review and vocabulary building.

3610-20-30 Introduction to Russian Literature (3, 3, 3) 3610: Russian Poetry. 3620: Russian Short Stories. 3630: Russian Short Novels. Prereq: Completion of Russian 3510-20 or equivalent.

ADVANCED UNDERGRADUATE AND GRADUATE

4010 Selected Topics in Russian and East European Studies (3) Interdisciplinary seminar on selected topic using appropriate approach.

4101 Foreign Study (1-16) See page 187.

4102 Off-Campus Study (1-16) See page 187.

4103 Independent Study (1-16) See page 187.

4110-20-30 Studies in Major Russian Writers (3, 3, 3) Content varies. Pushkin, Lermontov, Gogol, Turgenev, Tolstoy, Dostoevsky, Chekhov and others. Prereq: 9 hrs of 3000 courses (exclusive of 3010-20-30, 3210-20-30, 3310 or equivalent). May be repeated for credit.

History (462)

Professors:
L.P. Graf (Head), Ph.D. Harvard; E.V. Chmielowski, Ph.D. Harvard; J.C. Daniel, Ph.D. Maryland; R.E. Duncan, Ph.D. California (Berkeley); H.S. Fink (Emeritus), Ph.D. Princeton; Y.-P. Hao, Ph.D. Harvard; A.G. Haas, Ph.D. Chicago; T. Hâkim, Ph.D. California (Berkeley); C.O. Jackson (Associate Dean, Liberal Arts College), Ph.D. Emory; H.C. Klein, Ph.D. Columbia (Dean, Liberal Arts College), Ph.D. Princeton.

Associate Professors:

Assistant Professors:
S.O. Becker, Ph.D. Case-Western Reserve; N.L. Brain, Ph.D. Stanford; S.J. Kleinberg, Ph.D. Pittsburgh; R.B. Rice, Ph.D. Harvard.

Distinguished Professor,
Alumni Distinguished Service Professor.

UNDERGRADUATE

Major: History 1510-20 (or honors equivalent), or 1610-20, is prerequisite to a major which consists of 36 hours, including 8 hours of History 2510-20 and 28 hours of upper-division courses chosen so that the student presents a minimum of 8 upper-division hours in two of the three following groups: (a) European; (b) United States; (c) Other areas, g. Latin American, Asian, etc. Students may use only two of the three History colloquia (4010, General; 4011, European; 4012, American) toward the 36 hours of the major. Honors in History—Consists of prerequisites to the general major plus 45 hours of courses, including group requirements in the general major and History 4018-28 plus 2008, 3008, 3048.

(a) EUROPEAN: 3060-70-80; 3140-60-40; 3411-12-13; 3421-22-23; 3431-32-33; 3445-46; 3470-80-90; 3710-20-30; 3740-70-70; 4011; 4250-60; 4260; 4380; 4410-20-30; 4470; 4550-60; 4560; 4570-50; 4740-50; 4760; 4780-90-70; 4790-70-80; 4800-50; 4870-80-90; History 4015 when subject matter is appropriate.

(b) UNITED STATES: 3311-21; 3610-20; 3630-40-50; 3670; 3690; 3911-21-31; 4012; 4290; 430-20-30; 4360; 4370; 4610-20-30; 4840-50-60; 4670; 4910-20-30; 4950-60; History 4015 when subject matter is appropriate.

Minor: History 1510-20 (or honors equivalent) is prerequisite to a minor which consists of 24 hours of courses numbered above the 2000 level of which at least 8 hours must be in United States history.

American Studies. See Cultural Studies.
Asian Studies. See Cultural Studies.
Latin American Studies. See Cultural Studies.

Greek
See Classics.

Hebrew
See Religious Studies.
4280 Women in European History (4) Comparative analysis of role and image of women in Medieval, Renaissance, and Victorian periods. Attention given to parallel changes in structure of family as well as relationship between Western culture and women's protest movements.

4290 Women in American History (4) Approaches of 4280 applied to American society.

4310-20-30 History of American Foreign Relations (3, 3, 3) 4310—Revolution to 1901; 4320—1901-1941; 4330—1941 to present.

4360 The United States in World War II (4) Military, diplomatic, and domestic experience.

4370 U.S. Military History, 1754 to the Present (4) Examination of nation's broad strategic aims and means used to attain them, shifting strategy, tactics, and weaponry involved in our wars, and relationship between American society and its armed forces.

4380 Civilian-Military Relationships in the Modern Western World (3) Civilian-military affairs from about 1900 to 1960 in Western Europe, Russia, and America, emphasis on Western Europe: e.g. Dreyfus Affair, Army in Nazi Germany, and Truman-Mac Arthur controversy.

4410-20-30 Europe in the Twentieth Century (3, 3, 3) 4410—1919 to 1949; 4420—1949 to 1959; 4430—1959 to present.

4470 Poland and its Neighbors (3) A survey of Polish history from its beginnings to present with some emphasis on the Polish question within context of modern international affairs.

4480 Russian Intellectual History (3) Russian intellectual history from eighteenth century to present, emphasizing problems of Westernization, nationalism, and revolutionary tradition.

4490 Soviet Foreign Policy (3)

4500 History of Medieval England (3)

4510-20 Tudor-Stuart England (3, 3) 4510—1485-1603; 4520—1603-1714.

4551 Great Britain from Burke to Bright (1780-1848) (3)

4570 Twentieth-Century Britain (3)

4580 Revolution and Reform: Ireland in the 19th and 20th Centuries (4)

4590 History of Canada, 1774-1963 (Present) (3)

4610-20 The American Frontier and Westward Movement I, II, III (3, 3, 3) Settlement and development of the "West" throughout American history.

4640-50-60 Social and Cultural History of the United States (3, 3, 3) 4640—Colonial Society and Early Nation to 1825, 4650—1825-ca. 1900, 4660—1900-present.

4670 Cities and Urbanization in American History (4) Origins, growth and influence of American cities in development of the nation, from colonial era to present.


4741 Italian City-States, 1250-1500 (3) Evolution of urban civilization in northern and central Italy in medieval and Renaissance periods. Architectural and townscape forms studied in socio-economic as well as cultural contexts. Florence is primary focus, but other major city-states are also included.

4770-80 Austria and Central Europe (3, 3) 4770—1770; 4780—1870.

4791 Modernization of the Middle East (3) Advanced reading and discussion course which examines key facets of political, economic, and social dynamics in contemporary Middle East with emphasis on institutional building, elites, and ideology. Prereq: 3795 or consent of instructor.

4792 Historical Writers in Islamic History (3) Advanced reading course which introduces student to major historical writers of the Middle East from Ibn Khaldun to modern times. Prereq: 6 hrs Middle East history or consent of instructor.

4811-21 History of Japan (4, 4)

4840 History of Mexico (3)

4850 History of the Caribbean (3) Caribbean region from discovery and colonization to contemporary times.

4870-80-90 China (3, 3, 3) 4870—Cultural History of China. 4880—History of Modern China. 4890—History of Contemporary China.


GRADUATE
A student who enrolls in the Graduate School with intention of obtaining an advanced degree in history shall have completed an undergraduate major in history or its equivalent.

The Master's Program
General requirements for the Master of Arts and Master of Arts in College Teaching degrees are found in the Graduate Catalog.

The Doctoral Program
General requirements for the doctoral degree are found in the Graduate Catalog.

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5015 Periods in European History (3)

5016 Periods in American History (3)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5211-12-13-14-15-16-17-18-19 M.A. Reading Courses (3, 3, 3, 3, 3, 3, 3, 3)

5221-22-23-24-25 M.A. Reading Courses (3, 3, 3, 3, 3)

5240 Introduction to Historical Research (3)

5250 European Historiography (3)

5260 American Historiography (3)

5271-72-73 Teaching of College History (0, 0, 0)

5280 Philosophy and Methodology (3)

5290 Quantitative Analysis of Historical Data (3)

5300 Topics in History (3)

5310 Topics in Women's History (3)

5320 Topics in Historical Editing (3)

5360 Topics in American Foreign Relations (3)

5410 Topics in Early Modern European History (3)

5440 Revolution and Restoration in Central Europe, 1780-1850 (3)

5444 Topics in French History (3)

5450 Topics in Nineteenth-Century European History (3)

5450 Topics in Twentieth-Century European History (3)

5480 Topics in Russian History (3)

5510 Topics in Tudor-Stuart England (3)
students invited on the basis of test scores, high school averages, and where appropriate, on University performance. Participation in the 2000-, 3000-, and 4000-level courses is based on cumulative averages. At present students with an average of 3.25 or greater are eligible.

Honors (509)

1118-28-38 Honors: First Year—Inquiry and Modes of Thought (2-4, 2-4, 2-4) 1118—The Humanities; 1128—The Natural Sciences; 1138—The Social Sciences. May be repeated.

2118-28-38 Honors: Sophomore—Special Problems Seminar (2-4, 2-4, 2-4) 2118—The Humanities; 2128—The Natural Sciences; 2138—The Social Sciences. These seminars focus on selected problems in the respective disciplines. The specific topics will vary from year to year. May be repeated.

3118-28-38 Honors: Junior—Colloquium (2-4, 2-4, 2-4) Small group studies of selected topics. May be repeated.

4101 Honors: Foreign Study (1-16) See page 187 and Director of Special Programs. Primarily for College Scholar Students.

4102 Honors: Off-Campus Study (1-16) See page 187 and Director of Special Programs. Primarily for College Scholar Students.

4103 Honors: Independent Study (1-16) See page 187 and Director of Special Programs. Primarily for College Scholar Students.

4118-28-38 Honors: Senior—Colloquium (2-4, 2-4, 2-4) Small group studies of selected topics. May be repeated.

4998 Honors: College Scholars Studies (2-16) Designed for College Scholars working on their senior thesis, project, or performance. May be repeated for a total of 16 credit hours.

Human Services (532)

Associate Professors:
R.F. Korsch (Director), Ph.D. Tennessee; C.T. Cruithins, D.S.W. Tulane.

Assistant Professors:
J.D. McLean, Ph.D. Chicago; F.J. Spicuzza, M.S.W. Tennessee; N. Wright, M.S.W. Pittsburgh.

Instructor:
W.R. Woodruff, M.S.W. California (Berkeley).

Major: 48-52 hours
Requirements: Human Services 2690, 3100, 3300, 4220, 4229, 4400.
In addition, four courses from the following alternative areas (one course from each of the four areas):

I. Culture and Personality
   American Studies 3010; Anthropology 3410, 3800, 3930, 4420, 4430, 4740; Audiology & Speech Pathology 4250, 4650; Child and Family Studies 3210, 3220, 4810; Educational Psychology 4110, 4800; Geography 3610; Psychology 3120, 3550, 3650, 4510; Sociology 3130, 4820; Speech 3021, 3030.

II. Complex Organizations
   Geography 3610; Political Science 3565, 3566, 4665, 4666; Psychology 4520; Religious Studies/Sociology 4940; Sociology 3610, 3820, 4030, 4560.

III. Research and Statistics
   Computer Science 3010; Philosophy 3720, 4720; Psychology 3510; Sociology 3910, 3920.

IV. Community and Society
   Economics 3220, 3410; Anthropology 3070, 3450; Child and Family Studies 3515, 3520, 4610; Geography 3000, 3430; Home Economics 3110; Human Services 4900; Philosophy 3320, 3440, 3611; Political Science 3710, 3720, 3730, 3760, 4580, 4590; Public Health 3330; Religious Studies 3550, 3600, 3610; Rural Sociology 3420; Sociology 3160, 3220, 3330, 3360, 3420, 3510, 3690, 4330, 4530, 4540, 4930; Special Education 5490, 5620.

Total Hours Credit: 48-52

2690 Introduction to Human Services (4) General field of human services with focus on related societal values; contemporary issues in human services.

3100 Social Welfare as a Social Institution (4) Specific social welfare institutions examined in depth in relation to human needs, structure, program, and service approaches. 2690 recommended.
3200 Peoples and Problems of Appalachia (4)
Course designed to provide better understanding of Appalachian peoples, by exploring their life style and institutions in contemporary human services point of view. Special emphasis placed on political and economic structures of region. Recommended: Anthropology 4740.

3300 Thinking about People (4) Intended to facilitate development of southerners informed, and empathic attitudes toward human beings—those providing service as well as those receiving service.

4100 Deviant Behavior as a Product of Labeling (4) Course is designed to show human services workers the role they play in maintaining the deviance or deviant role of client or clients being served. Settings considered will include crime, delinquency, health, and blindness.

4101 Foreign Study (1-16) See page 187.

4102 Off-Campus Study (1-16) See page 187.

4103 Independent Study (1-16) See page 187.

4220 Human Services Methodologies (4) Introduction to some specific helping techniques essential to administration and delivery of human services.

4229 Special Topics in Human Services (4) Exploration of specific issues, methods, values, and trends which have implications for helping practitioners, e.g. art therapy, behavior modification, counseling skills, self awareness training. Content varies, topic be determined by instructor; may be repeated up to 12 credit hrs.

4400 Human Services Field Work (8 or 16) Practical field experiences in appropriately organized and directed human services settings. Designed to offer the student the opportunity to learn and develop specific helping skills and to become exposed and involved in the roles and functions of social services; to provide some direct services in a supervised learning situation. For majors only. May be repeated. 16 hrs required. S/NC. Prereq: Consent of instructor.

4900 Aspects of Urban Environment (4) Same as Architecture 4900, Real Estate 4900, Psychology 4900.

Italian
See Romance Languages.

Japanese
See Cultural Studies (Asian Studies).

Latin
See Classics.

Latin American Studies
See Cultural Studies.

Linguistics
See Cultural Studies.

Mathematics (641)
Professors:
L. K. Barrett (Head), Ph.D. Pennsylvania; G. E. Albert (Emeritus), Ph.D. Wisconsin; J. S. Bradley, Ph.D. Iowa; J. H. Carruth, Ph.D. Louisiana State; R. E. Cline, Ph.D. Purdue; R. Ja Davenport, Ph.D. Wisconsin; D. S. Dye, Ph.D. Maryland; E. Eaves (Emeritus), Ph.D. Texas; H. Frensdon, Ph.D. Illinois; R. T. Gregory, Ph.D. Illinois; T. G. Hallam, Ph.D. Missouri; D. B. Hinton, Ph.D. Pennsylvania; A. S. Householder (Emeritus), Ph.D. Chicago; L. S. Householder (Emeritus), Ph.D. Ohio; H. W. Mathews, Ph.D. Utah; R. M. McConnell, Ph.D. Duke; D. D. Miller (Emeritus); D. D. Michigan; R. A. Ronningen, Ph.D. Colorado; K. T. Reddy, Ph.D. Indian Institute of Technology; P. W. Schaefer, Ph.D. Maryland; F. W. Stollman, Ph.D. Ohio; G. Voss, Ph.D. California Riverside.

Associate Professors:

Assistant Professors:

Instructors:
C. G. Doss, M.A. Tennessee; M. S. McLean, M.S. Purdue; D. P. Nash, M.A. Colorado.

Space Institute, Tullahoma.

UNDERGRADUATE Placement Information for Freshman Courses: Students who need more than one year of mathematics should plan to take 1840-50-60 or 1842-50-62 or 1848-56-68. The prerequisites for 1840 (and 1842) are two years of high school algebra, one year of geometry and one semester of trigonometry or equivalent. Students who present an ACT score below 28 in mathematics or an equivalent ACT score of 1700 with a grade of C or better before taking 1840 (or 1842). Students who have not had high school trigonometry should take 0150 before (or concurrently with) 1840 (or 1842). Students who present an ACT score of at least 32 in mathematics and a high school average of at least 3.00 are eligible for the honors course 1848. Prospective mathematics majors who meet these requirements are particularly encouraged to enroll in 1848. (Exceptions to the eligibility criteria for 1848 are possible. Interested students should see the department head in Ayres Hall, Room 124.)

The prerequisites for 1540 are two years of high school algebra or one year of algebra and one year of geometry. Students who present an ACT score below 18 in mathematics may take 1540 but are advised to take Algebra Refresher, Part I, in the Workshops and Non-Credit Programs (or equivalent program elsewhere) and make at least B, or to make a passing grade in Algebra Refresher, Parts I and II, in the Workshops and Non-Credit Programs (or equivalent program elsewhere). Students who have taken 2 years of high school algebra and 1 year of high school geometry and who present an ACT score in mathematics of at least 26 (or those who earned at least a grade of B in high school algebra and geometry, and present an ACT score in mathematics of at least 24) are encouraged to enroll 1540 and begin with 1550.

Students who have a deficiency in algebra or geometry must remove the deficiency by taking the appropriate refresher course(s) in the Workshops and Non-Credit Programs (or equivalent elsewhere).

A student may receive credit for only one of the following courses: 1500, 1540, 1700. The last one of these courses taken is the one which will count for credit.

Honors Courses: The current practice of the department is to offer honors versions (1848-56-68 and 2848-56-68) of 1842-50-60 in sequence, fall-winter-spring, each year. In addition to these regularly offered honors courses, an honors version of any course in the department whose number has zero as the last digit may be offered in any quarter. In this case, the last digit will be changed to eight and the title will be preceded by the word "Honors," both in the Timetable and on the student's transcript. These honors courses may be offered upon the initiative of interested faculty, students, or the department head (in all cases subject to the approval of the department head).

Proficiency Examinations: Students who have taken calculus in high school are encouraged to inquire at the Mathematics Office, Ayres 121 about the possibility of taking a proficiency examination for credit or for credit. For courses from the calculus sequence 1840-50-60. If a satisfactory grade is made on the examination(s), credit will be awarded for the appropriate course(s).

Major: To major in mathematics, a student must complete the Basic Requirements and Advanced Requirements listed below:

1. Basic Requirements:
   a. 2840-50-60; or 2848-56-68; or 2540-50-60; 2610, and 2860.
   b. 3810, preferably taken during the sophomore year. Students who take 2848-56-68 may substitute any 3 or 4 hour mathematics course numbered 3050 or above for 3810.

2. Advanced Requirements:
   a. 21 additional hours in mathematics courses numbered 3050 or above, including a senior seminar (4910 or 4920) and at least two of the following sequences: 3780-90, 3920-30, 4060-4245, 4060-70, 4120-50, 4120-4810, 4150-60, 4225-35, 4225-45, 4235-45, 4510-20, 4550-4250, 4710-4550, 4610-30, 4610-4235, 4650-60, 4710-4250, 4750-60.
   b. 9 additional hours in courses from the following list: mathematics courses numbered 3050 or above; Computer Science 3715, 4710, 3510, 4510; Curriculum and Instruction 3751, 3752, 3521, 3522; Physics 3210, 3220, 3230, 4410, 4420, 4430, 4210, 4220, 4225; Statistics 3450.

Honors Program: An Honors Program in mathematics will consist of at least 27 hours of mathematics courses numbered 4000 or above, including at least 9 hours of 4000 level honors courses (those whose number ends in 8). Students who satisfy the major requirements (categories 1 and 2 above) and complete the Honors Program with a grade point average of at least 3.4, 3.6, or 3.8 will be graduated with Honors, High Honors, or Highest Honors in mathematics, respectively.
In exceptional cases, other courses of similar level may be accepted in place of the six hours of honors courses.

A student who wishes to be considered under the Honors Program will apply the quarter before he or she expects to graduate (but in the spring, if graduation is to be in December). The application will list the 27 hours to be offered, including the honors courses or their proposed substitutes. Students taking more than 27 hours of qualifying courses may select those to be listed. A note of successful completion will be added to the student’s transcript.

Students interested in planning an Honors Program should consult their advisers as early as possible.

Minor: Consists of 2848-50-60 (or 2848-58-68); or 2540-50-60, 2610 and 2860) and at least 12 hours in courses numbered 3050 or above.

Program Planning for Majors:

Mathematics majors have considerable freedom in determining how they will meet the advanced requirements of the major. In order to offer some guidance in program planning, the mathematics department has designed several sample programs which majors may wish to follow. A brief description of these programs appears below for those interested in these or any additional programs which the department may design in the future is available in Ayres 121. Completion of the courses suggested in any of the following programs will meet (and, in some cases exceed) the advanced requirements for a major in mathematics.

All students who intend to pursue graduate studies in the mathematical sciences are strongly urged to study French, German, or Russian for at least two years.

Program 1. This program is designed for students who have a general interest in mathematics and do not plan to become professional mathematicians. Supplemented by appropriate non-mathematical electives, such a program might be followed, for example, by pre-medical or pre-law students, by students planning to teach secondary school mathematics, or by those who plan to enter business after graduation.

Suggested courses: Mathematics 3150, 3050-60, 3780-90, 3330, 4510-20, 4120, senior seminar, 6 hours of math electives.

Program 2. This program emphasizes pure mathematics and is designed to prepare students for graduate work in any of the mathematical sciences.

Suggested courses: Mathematics 3150, 3230-30, 4510-20-30, 4120, 4150-60, 4250, senior seminar, 3 hours of math electives. The honors courses 4158-38 and 4158-68 are especially recommended. Since 4158-68 begins only in the fall quarter, students who wish to enroll in this sequence should take 4120 during their sophomore or junior years.

Program 6. This program emphasizes smaller electives and is designed to prepare for employment in industry. Suggested courses: Mathematics 3150, 4225-35, 4610, 4060-70, 4250, 4710.

Program 3-B. This program emphasizes numerical methods and is designed to prepare the student for graduate work in numerical mathematics. Suggested courses: Mathematics 3150, 4225-35, 4610, 4060-70, 4510-20-30, 4250, Computer Science 3510, Mathematics 4980 or Computer Science 4330, senior seminar.

Program 4-A. This program emphasizes operations research, probability, and mathematical statistics, and is designed to prepare the student for employment in business or industry. Suggested courses: Mathematics 3150, 4540, 4060-70, 4560-60-70, 4750-60-70, Statistics 3450, Industrial Engineering 3510-20-30, senior seminar, 3 hours of math electives.

Program 4-B. This program emphasizes operations research, probability, and mathematical statistics, and is designed to prepare the student for graduate work in one or more of these areas. Suggested courses: Mathematics 3150, 4540, 4060-70, 4560-70-60, 4150-20-30, 4750-60-70, Industrial Engineering 3510-20-30, senior seminar.

Program 4-C. Double Major: Mathematics and Statistics. Students completing the following program will graduate with a double major in mathematics and statistics. Supplemented by a minor in an applied business or scientific field, this program provides preparation for graduate programs in business or applied statistics or for independent research. Suggested courses: Mathematics 3150* or 3155*, 3780*, 3790*, 4120, 4710, 4690*, 4660, 4750, 4225, and senior seminar; Statistics 3450*, 3460*, 4310, 4415, 4410, 4750 and 4250; Computer Science 4310. (*Course counts toward both mathematics and statistics major requirements.)

Program 5. This program emphasizes actuarial science and is designed to prepare the student for employment or graduate work in actuarial sciences.

Suggested courses: Mathematics 3150, 4225-35, 4120, 3780-90, 4560-60-70, senior seminar and two courses from 4750-60-70, 4060-70, Computer Science 3510, 3520, 4550.

Students following this program should supplement their mathematical training by selecting electives such as Economics 2110-20-30 or 2118-28-38; Accounting 2110-30; Insurance 3220, 4710-20; Marketing 3110; Statistics 3450; Industrial Engineering 3510-20-30; Computer Science 3520, 4250; and Computer Science 3510, 3520, 4250 in this program should also plan to take the Society of Actuaries Examinations I and II.

0150 Trigonometry (0) Plane trigonometry with emphasis on identities and other analytic aspects used in calculus. For students who enter with deficiency in high school trigonometry. 3 hrs per week. No college credit.

1020 Mathematics: A Philosophical Approach (4) Mathematics as a science, art, and "language game"; nature of mathematical truth; strengths and limitations of the axiomatic method; the infinite and the infinitesimal; mathematical creativity; ethical problem solving, the mathematician-scientist.

1540 College Algebra (4) Sets, real and complex number systems, exponents and radicals, fundamental algebraic operations, theory of equations, polynomials, graphs. NOTE: students may not receive credit for both 1540 and 1700. If both are taken, the last one taken counts. Prerequisites: MATH 3150 or one year algebra and one year geometry.

1550-60 Introductory Calculus—General Mathematics (4, 4) 1550—Equations of straight lines, conics, derivative functions, applications of derivatives, maxima and minima, related rates, antiderivatives, integration of algebraic functions, applications. Prerequisite: 1540 or equivalent. 1560—Determinants, matrices, systems of linear equations and inequalities, Cramer’s rule, linear programming, trigonometric functions, applications, arithmetic and geometric series, simple and compound interest, annuities, exponential and logarithmic functions, law of growth, applications. Prerequisite: 1550 or equivalent.

Note: Students with an adequate high school background in algebra are advised to begin the 1540-50-60 sequence with 1550.

1700 PreCalculus Mathematics (4) Function concept and use of function. Properties of functions and their graphs. Polynomial, exponential, logarithmic, and trigonometric functions. NOTE: students may receive credit for both 1540 and 1700. If both are taken, the last taken counts. Prerequisites: Two years of high school algebra, and the equivalent of a year of high school geometry or taking Mathematics 0150 concurrently.

1840-50-60 Single Variable Calculus (4, 4, 4) Functions, graphs, slope of a curve, definition of a derivative, limits, derivative functions of algebraic functions, implicit differentiation, chain rule, differentials, continuity, applications of derivatives, maxima and minima. Indefinite integral, area, definition of definite integral. Fundamental Theorem of calculus, application of the definite integral, logarithmic, exponential, and trigonometric functions and their derivatives. Techniques of integration, plane analytic geometry, polar coordinates. Must be taken in sequence. Prerequisite: Two years of high school algebra, one year geometry, and one semester of trigonometry or equivalent.

1841-51 Calculus for Biological Sciences (4, 4) Course for students whose intended major is in an area of the life sciences. Differentiation and integration of logarithmic, exponential, trigonometric, and algebraic functions; partial differentiation, elementary differential equations, infinite series, probability. Emphasis upon applications of calculus problems to biology. Must be taken in sequence. Prerequisite: Two years of high school algebra, one year geometry, and one semester of trigonometry or equivalent.

1842-52-62 Single Variable Calculus with Computer Support (5, 5, 5) Same coverage of calculus as 1840-50-60 supplemented with computer. Elements of differential calculus applied to problems from following areas: computer evaluation of functions; limit operation; application of limits to definition of derivative; approximations via differentials; approximate solution of equations by bisection, secant methods and Newton’s method; rectifiers in rectilinear motion; numerical integration; Euler’s method for initial value problems. Prerequisites: Two years high school algebra, one year geometry, and one semester of trigonometry or equivalent.

1845-55-65 Honors: Single Variable Calculus (4, 4, 4) Honors course for students who have had trigonometry, selected on basis of placement test scores and high school record. Students receiving a grade below B in 1845 will complete the year’s work in Calculus B in 1855. Special sections of 1855 are made available for students who perform well in 1845. Must be taken in sequence.

1900 Selected Topics (4) Applications of definite integration; approximation integration; simultaneous linear equations; matrix inversion; elementary linear programming; infinite series; descriptive
statistics and finite probability. This course is especially recommended for architecture majors. Prereq: 1830. Students who have completed one year of study of calculus after taking 1900 should consult the mathematics department.

2012 Basic Concepts of Elementary Mathematics (4) Sets, theory of arithmetic operations, elemen-
tary probability and statistics. Basic geo-
metric concepts, elementary analytic geometry. Applications. May not be used for credit concurrently with or after 1110-1500, 1540, 1550, 1630, 1810, 1818, 1840, 1848, 2110, 2410, 2412, 2540, 2710. Primarily for secondary education students.

2020 Great Ideas in Mathematics (4) Course for non-math majors to acquaint them with the great ideas to ideas which have had a significant impact on direction of mathematical thought in particular and on civilization in general. Selected topics may include: the Greeks and mathematics as logical reasoning; irrational numbers; Descartes and co-
ordinate geometry; Newton and Leibnitz and the mathematics of motion; non-Euclidean geometry; the infinite. Prereq: High school algebra and geometry and an interest in cultural mathematics.

2110-20-30 Structure of the Number System (3, 3, 3) 2110—Set theory, whole numbers, integers. 2120—Inverses, order properties, rational num-
bbers. 2130—Order and number theory, irrational and irrational numbers. Euclidean geometry. Must be taken in sequence. Prereq: 1 year high school algebra and geometry or standing before entering in ele-
mentary education, College of Education, or con-
sent of instructor.

2412-22 Finite Mathematics (4, 4, Logic and sets, combinatorics, counting, vectors and ma-
trix algebra, elementary optimization and game theory, applications to simple problems in the behavioral and/or managerial sciences. Prereq: Two years of high school algebra or one year of algebra and one year geometry.

2512 Calculus Refresher (4) Functions, graphs, limits, derivatives, mean value theorem, integra-
tion and properties of the integral. For students who have had some previous exposure to differentia-
tial and integral calculus. Prereq: 1560 or equiva-
 lent and consent of instructor.

2540-50-60 Calculus (4, 4, 4) Calculus sequence for students who have completed 1560 or students who have had a significant introduction to calculus in high school. Definition of a derivative; derivatives of algebraic functions, the chain rule, differen-
tials, continuity; applications of deriv-
tives; Rolle's Theorem, the Mean Value Theorem, maxima and minima; indefinite integrals and appli-
cations, the definite integral and applications, Fundamental Theorem of Calculus. Integrals, differ-
avitives and integrals of transcendental functions, methods of integration, parametric equations, vectors, dot and cross product of vectors, scalar and vector products, equations of lines and planes, sur-
faces, and graphs of functions; directional deriv-
avitives, the chain rule, the total differential, maxima and minima, line integrals, exact differentials, multiple integrals with applications, cylindrical and spherical coordinates, series, tests for con-
vergence, power series, Taylor's series. Must be taken in sequence. Prereq: Math 1560 or at least one semester of high school calculus.

2610 Introduction to Differential Equations (2) Var-
iables separable, homogeneous, exact, and linear first order equations, integrating factors. Second order linear equations with constant coefficients. Prereq: 1830.

2840-50-60 Multivariable Calculus and Matrix Al-
gebra (4, 4, 4) 2840-60—Differential equations, vec-
tors, vector fields, solid analytic geometry, dot and cross product of vectors, space curves. Functions of several variables, directional derivatives, partial derivatives, gradient, curves and surfaces, multiple integrals, cylindrical and spherical coordinates, series, convergence tests, polar coordinates, indeterminate forms, absolute convergence. Prereq: Math 1860. Must be taken in sequence. Prereq: Vector systems of equations, determinants, inverses of matrices, eigenvalues and eigenvectors. A student cannot receive credit for both 2860 and 4050. Prereq: 2850 or 2560 or consent of instructor.

3510 Intermediate Analysis (3) Primarily for stu-
dents in secondary mathematics education. Covers real and complex analysis. Calculus from an advanced viewpoint with emphasis on proofs of basic theorems. Topics covered include limits of sequences and functions, continuity, derivatives, definite integral, and fundamental theorem of integral calculus. Prereq: 1550-60 or 1890.

3715 Discrete Structures (3) (Same as Computer Science 3715.)

3720 Theory of Equations (3) Techniques for find-
ing roots of polynomial equations. Topics covered include complex, integral, and rational roots, mul-
tiple roots, separation of roots, Sturm's theorem, Horner's method of approximating roots, and for-
mulas for quadratic, cubic, and biquadratic equa-
tions. Prereq: 1 year of College mathematics.

3725 Advanced Discrete Structures (3) (Same as Computer Science 3725.)

3780-90 Introduction to Combinatorial Theory (3, 3) Introduction to problems of arrangement and se-
lection within discrete systems. Enumeration by recurrence relations and generating functions, graph theory, finite geometries and finite fields, partitions, block designs. Prereq: Math 2680 or consent of instructor.

3810 How to Prove It in 3 (3) This course is designed to im-
prove understanding of natural and methods of ma-
thematical proof by means of practice and par-
ticipation in seminar and group activity. Not includ-
ing certain standard topics such as ele-
mentary set theory, relations and functions, and mathematical induction. Coreq: 2850 or 2560.

3820-30 Topology of Euclidean Spaces (3, 3) Topics will include topology of line, plane, and poly-
topes, compactness, connectedness, completeness, continuous functions, homeomor-
phisms, compactness, and topological matrix groups. May be taken in sequence. Prereq: 2810 or 2886 or con-
sent of instructor.

3990 Studies in Mathematics (1-4) Credit deter-
minted at registration. May be repeated for credit with consent of department; maximum 9 hrs credit. Prereq: Consent of instructor.

4050 Matrix Algebra and Applications (3) Matrices, elementary operations, systems of linear equa-
tions, vector spaces, determinants, eigenvalues and eigenvectors. A student cannot receive credit for both 2860 and 4050. Prereq: 2850 or 2560 or consent of instructor.

4060-70 Matrix Algebra and Applications (3, 3) Eigenvalues and eigenvectors, singular values and singular vectors, unitary and similarity transfor-
mations, quadratic forms, theory of conics, Jordan canonical form, and related topics. Prereq: 2860 or 4050.

4102 Off-Campus Study (1-16) See page 187.

4120 Linear Algebra (3) Abstract vector spaces, linear transformations, and their matrices, sys-
tems of linear equations and determinants, inner products, and diagonalization of symmetric ma-
trices. Prereq: 2860 or 4050.

4150-60 Abstract Algebra (3, 3) Equivalence rela-
tions and partitions, properties of integers, ele-
mentary theory of groups, introduction to vectors, rings, integral domains, divisibility, unique factori-
zation domains, fields. Must be taken in sequence. Prereq: 2860 or 4050.

4225 Numerical Solution to Equations and Nu-
merical Approximations (3) Numerical solution to equations and numerical approximations. Intro-
duction to analysis of error in computational errors. Solution of a single nonlinear equation; intro-
duction to iterative methods for linear and non-linear systems. Polynomial and logarithmic, root-finding and inverse power methods for eigenvalues. Ap-
proximation by polynomials, piecewise polynomial-
ization, symmetric matrix algebra. Prereq: Math 3150 or 3155. (Same as Computer Science 4225.)

Stability, consistency, and convergence. Current algorithms, variable step and order; stiff systems. Boundary value problems. Prereq: 3150 or 3155 and 4610 or 4225. (Same as Computer Science 425.)


4250 Elementary Complex Variables (3) Complex numbers, Cauchy-Riemann equations, elementary functions, Cauchy's theorem and formula, Taylor and Laurent series, residues and their applications. Prereq: 2860; one 4000-level mathematics course recommended.

4510-20-30 Introduction to Analysis (3, 3, 3) Real number system, functions, sequences, limits, continuity, uniform continuity, differentiation, integration. Functions of several variables, implicit function theory. Multiple integrals, infinite series, sequences and series of functions, uniform convergence, Taylor series. Should be taken in sequence. Prereq: 2860.

4540 Infinite Series and Functions of Several Variables (3) General series and power series theory, Taylor's formula, uniform convergence. Partial differentiation and maxima and minima for functions of several variables. Lagrange multipliers. Prereq: 2860.

4550 Partial Differential Equations (3) Fourier series; Fourier integral; orthogonal functions; the vibrating string; solution by series; heat flow, Bessel functions. Prereq: 2860; 4610 or 4710 recommended.

4610-20-30 Ordinary Differential Equations (3, 3, 3) 4610—Linear first and second order equations. Power series solutions and Legendre polynomials. Regular singular points, Frobenius method, and Bessel equations. Systems of linear differential equations and the matrix exponential. 4620—Numerical methods for ordinary differential equations including one-step methods (Euler, Runge-Kutta) for initial value problems, multistep methods. A-stability, and two point boundary value problems. 4630—Special topics which may include existence and uniqueness, oscillation theory, Liapunov stability, singular perturbations, and asymptotic solutions. Prereq: 4610: 2860 or 4060, 4620, 4650 or 2860; and 3120 or 3155, 4630: 4610 or consent of instructor.

4640 Calculus of Finite Differences (3) Real difference equations; application to problems in engineering and economics. Prereq: or coreq: 4610.

4650-60-70 Introduction to Mathematical Statistics (3, 3, 3) Introduction to probability; discrete and continuous distributions; correlation, regression, and statistical independence; foundations of statistical theory; significance tests. Must be taken in sequence. Prereq: 2860.

4710 Vector Analysis (3) Fundamental operations, base vectors, dot and cross products, directional derivatives, divergence and curl of vector fields, line and surface integrals, divergence theorem of Gauss, and Stokes theorem. Prereq: 2860.

4750-60-70 Introductory Probability Theory (3, 3, 3) 4750—Elementary combinatorial analysis, probabilities in discrete sample spaces, conditional probability and stochastic independence, binomial, Poisson, hypergeometric and normal distributions. 4760—Expectation, conditional expectation and characteristic function of random variables, independence of random variables, the weak and strong laws of large numbers, and the central limit theorem. 4770—Markov chains; limiting fng probabilities; steady-state and stationary distributions; stochastic processes; Poisson, birth and death processes. 4780—Kolmogorov equations. Prereq: Math 2840-50-60.

4810 Elementary Number Theory (3) Divisibility, congruences; theorems of Fermat and Wilson, primitive roots; indices, quadratic reciprocity. Prereq: 2860 or consent of instructor.

4910 Senior Seminar (1-2) Credit determined at registration. May be repeated for credit with consent of department; student may offer a maximum of 4 hrs credit from 4910 and 4920 combined. Prereq: Senior standing.

4920 Senior Seminar (1-2) Credit determined at registration. May be repeated for credit with consent of department; student may offer a maximum of 4 hrs credit from 4910 and 4920 combined. Prereq: Senior standing.

4980 Readings in Mathematics (1-3) Open to superior students with consent of department head. Independent study with faculty guidance. May be repeated. Maximum 9 hrs credit.

4990 Studies in Mathematics (1-4) Credit determined at registration. May be repeated for consent of department; maximum 9 hrs credit. Prereq: 1220 or equivalent. Recommended to nonmajors for study of areas of specific interest in the undergraduate mathematics curriculum.

GRADUATE

The Department of Mathematics offers four advanced degrees. In order to become a candidate for any one of these the student must first be admitted to the Graduate School. The Master of Arts and Master of Science degree programs presuppose a bachelor's degree with a major in mathematics. The Master of Mathematics degree is intended primarily for teachers of high school mathematics. Applicants for admission to this program must take the Graduate Record Examination and must have either (a) certification for teaching secondary mathematics, or (b) successful elementary or secondary school teaching experience. The Doctor of Philosophy degree program presupposes a bachelor's or master's degree with a strong major in mathematics. This program is intended to train professional mathematicians for a career of teacher of mathematics or scholarly work in colleges and universities or work in industry. Further details on all of these programs are in the Graduate Catalog.

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5011 Elementary Functions from an Advanced Standpoint for Teachers (3-4)

5012 Differential Geometry for Teachers (3-4)

5013 Geometry for Teachers (3-4)

5014 Analysis for Teachers (3-4)

5015 Probability and Statistical Inference for Teachers (3-4)

5050-60-70 Mathematical Logic (3, 3, 3)

5110-20-30 Theory of Functions of Complex Variables (3, 3, 3)

5150-60-70 Foundations of Analysis (3, 3, 3)

5210-20-30 Theory of Functions of a Real Variable (3, 3, 3)

5240-50-60 Linear Analysis (3, 3, 3)

5270 Stability Theory and Liapunov's Direct Method (3)

5310-20-30 Introduction to Higher Geometry (3, 3, 3)

5430 Integral Equations (3)

5440 Calculus of Variations (3)

5450-60-70 Introduction to Partial Differential Equations (3, 3, 3)

5455 Finite Difference Methods for Partial Differential Equations (3)

5465 Finite Element Methods (3)

5475 Advanced Topics in Numerical Partial Differential Equations (3)

5480-90 Mathematical Programming (3, 3)

5510-20-30 Introduction to Higher Algebra (3, 3, 3)

5540 Galois Theory (3)

5560-70-80 Theory of Matrices in Numerical Analysis (3, 3, 3)

5590 Theory of Rings (3)

5610-20-30 Mathematical Methods in Physics (3, 3, 3)

5640 Numerical Methods in Physics (3)

5655-65-75 Numerical Mathematics (3, 3, 3)

5710-20-30 Tensor Analysis (3, 3, 3)

5750-60-70 Advanced Mathematical Statistics (3, 3, 3)

5810-20-30 Number Theory (3, 3, 3)

5840-50-60 Mathematical Ecology (3, 3, 3)

5870-80-90 Introduction to Ordinary Differential Equations (3, 3, 3)

5910-20-30 Elementary Topology (3, 3, 3)

5970-80 Mathematical Systems Theory (3, 3)

5990 Graduate Reading in Mathematics (1-3)

5991 Seminar Analysis (1-3)

5992 Seminar Topology (1-3)

5993 Seminar Algebra (1-3)

5994 Seminar Foundations (1-3)

5995 Seminar Applied Mathematics (1-3)

6000 Doctoral Research and Dissertation

6210-20-30 Linear Analysis (3, 3, 3)

6450-60-70 Partial Differential Equations (3, 3, 3)

6510-20-30 Modern Algebra (3, 3, 3)

6540-50-60 Theory of Semigroups (3, 3, 3)

6570 Theory of Groups (3)

6610-20-30 Advanced Ordinary Differential Equations (3, 3, 3)

6750-60-70 Probability Theory (3, 3, 3)

6810-20-30 Topological Algebra (3, 3, 3)

6910-20-30 Modern Topology (3, 3, 3)

6940-50-60 Introduction to Algebraic Topology (3, 3, 3)

6991 Seminar Analysis (1-3)

6992 Seminar Topology (1-3)

6993 Seminar Algebra (1-3)

6994 Seminar Foundations (1-3)

6995 Seminar Applied Mathematics (1-3)

Medieval Studies

See Cultural Studies.

Microbiology

Professors: A. Brown (Head), Ph.D. Chicago; R.W. Beck, Ph.D. Wisconsin; J.M. Becker, Ph.D. Cincinnati; D.F. Holtman (Emeritus), Ph.D. Ohio State; A.J. Girardi, Ph.D. Pennsylvania; T.C. Montie, Ph.D. Maryland; J.O. Mundt, Ph.D. Michigan State; J.M. Woodward, Ph.D. Kansas; C.J. Wust, Ph.D. Indiana.
Microbiology (684)

2110 Microbiology for Student Nurses (4) Introductory course offered only to student nurses in diploma program of hospitals affiliated with The University of Tennessee. Microbiological principles as they apply to nursing care of the patient, epidemiology of infection, and principles of immunity and laboratory techniques. Coreq: 2101 or 2102.

2110 General Microbiology (3) General properties of bacteria, viruses, and fungi including study of pathogenesis, immunity, and applied bacteriology. The course meets the needs of programs that require a one-quarter course in microbiology. Coreq: 2111 or 2121.

2111 Microbes in Action (4) Demonstrations, and films relating to the subject matter of 2110. Students do not receive credit for 2111 if 2111 has been taken. Prereq or coreq: 2110.

2120 General Microbiology (5) Laboratory exercises designed to accompany 2110. Open only to students enrolled in the School of Nursing, premedical, pre-veterinary medicine, food technology, food science, nutrition, or food systems administration. Others by consent of instructor. Students do not receive credit for 2121 if 2111 has been taken. Prereq or coreq: 2110.

3510 Introduction to Microbiology I: Physiology, Genetics, and Immunology (4) Structure and behavior of prokaryotic and eukaryotic microorganisms: physiology and genetics of bacteria and viruses. Place of microorganisms in the environment. Prereq: Biology 3110, 3120.

3519-29 Introduction to Microbiology Lab I, II, III (2, 1, 1) Laboratory exercises designed to accompany 3510 and 3520 which are coreq for 3519-29. Coreqs: 3519 is prereq to 3529.

3520 Introduction to Microbiology II: Immunology (4) Basic principles of inflammation and immunity, immunoglobulin structure, complement, hypersensitivity, and cell-mediated immunity. Prereq: Biology 3120. (Same as Zoology 3520.)

3530 Introduction to Microbiology III: Pathogenic Microbiology (4) Disease-producing microorganisms including bacteria, fungi, and viruses. Prereq: 3510.

3810 Food Bacteriology (4) Standard methods for examination, cultivation, and identification of bacteria associated with food preservation and food spoilage. Prereq: 2110 and Chemistry 2230 or 2311, 2 hrs and 2 labs.

3820 Yeasts and Molds (4) Morphology, taxonomy, and physiology of yeasts, actinomycetes, and fungi. Prereq: 3510 or consent of instructor. 2 hrs and 2 labs.

4010 Biology of Soil Microorganisms (4) Same as Agricultural Biology 4010.
Music (698)


The Department of Music offers curricula leading to the Bachelor of Music degree which is designed to prepare students for graduate study and for professional positions, and the Bachelor of Arts degree with a major and minor in music, designed for those students whose interests are strong but essentially non-professional. The major requirements for the B.M. degree may be found on page 183. The requirements for a major and minor are as follows:

**Major:**
- Concentration in Applied Music—consists of Music 2000, 2111-21-31, 2113-23-33, 2310-20-30-40, 27 hours in applied music at the 2000-3000-4000 levels (9 hours each), and junior and senior recitals. Prerequisites are Music 1111-21-31, 1113-23-33, and 3 quarters of study in applied music at the 1000 level.
- Concentration in Music History and Literature—consists of Music 2111-21-31, 2113-23-33, 2310-20-30-40, and 27 upper-division hours in music history and literature. Prerequisites are Music 1111-21-31, 1113-23-33, and 1340.
- Minor:
  - Concentration in Applied Music—consists of Music 2000, 2111-21-31, 2310-20-30-40 and 18 upper-division hours in music history and literature. Prerequisites are the same as those for the major.
  - Concentration in Music History and Literature—consists of Music 2111-21-31, 2310-20-30-40 and 18 upper-division hours in music history and literature. Prerequisites are the same as those for the major.

The Bachelor of Science in Music Education, designed for preparation for institutional teaching, is administered by the Department of Music Education. See page 108 for requirements.

**General:**
- 1000 Fundamentals of Music Theory (3) Theory and practice of basic elements of music. 3 hrs.
- 1010-20-30-40-50-60 Class Piano (1, 1, 1, 1, 1, 1) For music and music education majors only. Must be taken in sequence. May not be waived by successful completion of Piano Competency Examination. Waived courses must be substituted with an equivalent number of quarters of study in Music 1580 or above.
- 1015 Class Voice (1) For music and music education majors only. May be repeated for credit.
- 2000 Solo Class (0)
- 2010 Introduction to Musical Theatre Technology (3) Stage technology unique to lyric stage.
- 2055-65-75 Diction for Singers (2, 2, 2) Sounds by phonetic symbols. Opera and art songs used for examples. Performance practice.
- 2071-81-91 Church Service Playing I (1, 1, 1) Practical skills applicable to the use of the organ in church services, including keyboard harmony, improvisation, and accompanying on the organ. Prerequisite: 1131 and 6 hrs in organ.
- 2810-20 Jazz Piano (1) Harmonic language of jazz: interpretation of chord symbols, for voice, solo, small group, and accompanying on the piano. Prereq: 1131 and 6 hrs in organ.
- 3000 Junior Recital (0)
- 3012-22-32 Song Literature (2, 2, 2) Study of literature from 1500 to present, with emphasis on performance practices. 3012—Classical and Romantic German art song; 3022—French and Russian songs; 3032—Late German and contemporary songs. Prereq: 2075 and consent of instructor.
- 3014-24 Woodwind Literature (2, 2) Prereq: Consent of instructor.
- 3015 Percussion Literature (1) Prereq: Consent of instructor.
- 3016 String Literature (2) May be repeated. Maximum 6 hrs credit. Prereq: Consent of instructor.
- 3040-50-60 Advanced Piano Literature (2, 2, 2) Piano music from preclassical period to present. Prereq: Consent of instructor.
- 3041 Keyboard Harmony (2) Melody harmonization, figured bass realization, and improvisation. Prereq: 1131-33, and keyboard proficiency at the 2000 level.
- 3052-53 Jazz Improvisation (2, 2) Study and application of principles of improvisation, including nomenclature, chord progressions, chord scales, patterns, melodic development, and free form devices. Prereq: Consent of instructor. 2 hrs and 1 lab.
- 3044-54 Brass Literature (2, 2) Prereq: Consent of instructor.
- 3070 Opera Production (1-3) Supervised work on opera productions. May be repeated for credit. Prereq: Consent of instructor.
- 3071-81-91 Church Service Playing II (1, 1) Continuation of Music 2071-81-91, which is prerequisite. Prereq: Consent of instructor.
- 4000 Senior Recital (0)
- 4051 Suzuki Piano Method (2) Study of the psychology, procedures, and literature of the Suzuki piano method. Prereq: Consent of instructor.
- 4010-30-30 Piano Techniques (1, 1) Problems of piano playing; development of piano technique; style and interpretation; program building. Prereq: Consent of instructor.
- 4012-22-32 Principles of Vocal Pedagogy (1, 1, 1) Examination and evaluation of concepts and approaches to teaching singing (past and present) and related aspects of vocal laboratory experiences accompany the study. Prereq: Consent of instructor.
- 4041 Styles in Opera Acting (3) Study and practice of styles in opera acting based on historical and national characteristics. Prereq: 3015 or consent of instructor.
- 4045 Projects in Opera Theatre (1-3) May be repeated for credit. Prereq: Consent of instructor.
- 4050 Advanced Instrumental Conducting (3) Development of knowledge and skills in instrumental conducting; study of various periods and composers and relationship of different styles to the conductor's art; musical analysis and practice in conducting. Prereq: Music Ed. 4430 or equivalent.
- 4060 Choral Conducting (3) Development of knowledge and skills in choral conducting; study of various periods and composers and relationship of different styles to the conductor's art; musical analysis and practice in conducting. Prereq: Music Ed. 4430 or equivalent.
- 4074-84 Church Music Seminar (3, 3) History and philosophy of church music; liturgies and liturgical music; church music administration. Prereq: Consent of instructor.
4400 Jazz Directing (1) Rehearsal techniques for jazz ensembles: special conducting techniques, repertoire, library systems, programming, and supervised laboratory experience in rehearsing university jazz ensembles. Prereq: Enrollment in applied music with jazz emphasis or consent of instructor.

4840 Jazz Pedagogy (1) Methods and materials relating to teaching of jazz and administering of jazz programs. Prereq: Enrollment in applied music with jazz emphasis or consent of instructor.

4860 Advanced improvisation (2) Emphasis on further development of individual skills and solving individual problems in jazz improvisation. Prereq: Music 3052-53.

MUSIC THEORY AND COMPOSITION

1111-21-31 Theory I (3, 3, 3) Materials of music with emphasis on literature of Baroque, Classical, and Romantic periods. Exercises in writing an analysis. Must be taken in sequence.

1113-23-33 Sight Singing and Ear Training (1, 1, 1) Should be taken concurrently with 1111-21-31 or 1118-28-38. Must be taken in sequence. 2 hrs per week.

1118-28-38 Honors: Theory I (4, 4, 4) Materials of music with emphasis on literature of Baroque, Classical, and Romantic periods. Exercises in writing and analysis. Designed for music majors. May substitute in theory/composition. Other students may be admitted subject to placement examination. Grade of C or better will be achieved to continue the course sequence.

1199 Fundamentals of Music Composition (2) Method invention in simple forms. May be repeated. Maximum 4 hrs credit. Prereq: Music 1111 or equivalent.

1400 Analysis of Jazz Styles (2) Individual improvisatory styles through analysis of their transcribed solos. Training and function of ear in music. Transcription of solos from recordings and preparation of analyses. Prereq: Consent of instructor.

2111-21-31 Theory II (3, 3, 3) Materials of music with emphasis on literature of Romantic and contemporary periods. Exercises in writing and analysis. Must be taken in sequence. Prereq: 1131 or 1138 or consent of instructor.

2113-23-33 Advanced Ear Training (1, 1, 1) Should be taken concurrently with 2111-21-31 or 2118-28-38. Must be taken in sequence. 2 hrs per week.

2118-28-38 Honors: Theory II (4, 4, 4) Materials of music with emphasis on literature of Romantic and contemporary periods. Exercises in writing and analysis. Prereq: 1138 or placement examination.

3111-21-31 Tonal Counterpoint (3, 3, 3) Counterpuntal techniques of eighteenth century, with emphasis on major and minor. Must be taken in sequence. Prereq: 2131 or 2138.

3112 Instrumentation (3) Basic techniques in scoring for voices; brass, woodwind, and string choirs, and percussion. Prereq: 2131 or 2138.

3113 Analysis I (3) Study and practice in analysis of structures of music from smallest structural units to large compound forms. Emphasis on macroanalytic techniques. Prereq: 2131 or 2138 or equivalent.

3114-24 Choral Arranging (3) Analysis of scores and writing of arrangements for choirs. 3114—male and female choir. 3124—mixed chorus. Prereq: 3112 or consent of instructor.

3122 Orchestration (3) Advanced techniques in instrumental writing with emphasis on scoring for the concert orchestra. Prereq: 3112 or consent of instructor.

3123 Analysis II (3) Continuation of Analysis I with emphasis on micro and linear analytic techniques. Prereq: 3113.

4100 Independent Study in Music Theory (1-3) May be repeated for credit. Prereq: Consent of department head.

4101 Foreign Study (1-6) See page 187.

4111-21-31-41 Analysis of Music Literature (3, 3, 3, 3) Detailed examination of musical compositions by historical period with emphasis on historical, thematic material, form and structure. Traditional and contemporary techniques. 4111—1600-1750. 4121—1750-1825. 4131—1825-1900. 4141—1900 to present. Prereq: 3123.

4112 Twentieth-Century Compositional Techniques (3) Styles and compositional devices from Debussy to present. Analysis of scores; idiomatic writing. Prereq: 2131 or equivalent.

4113 Pedagogy of Music Theory (3) Techniques, methods and materials involved in college-level theory programs. Prereq: Consent of instructor.

4114 Stage Band Arranging (3) Analysis of scores and scoring for the stage band. Prereq: 3112 and consent of instructor.

4115 Variation (3) Study and application of variation procedures. Prereq: 3123 or equivalent.

4116 Set Structure in Musical Composition (3) Theory of sets and its application to analysis of music. Prereq: Consent of instructor.

4124 Band Arranging (3) Study and application of techniques employed in scoring for the marching and concert bands. Prereq: 3112 or equivalent.

4134 Band Transcription (3) Technique and application of transcribing keyboard and orchestra music for concert band; editing and scoring. Prereq: 3112 or equivalent.

4150 Survey of Music Theory (3) Theory of music with emphasis on harmonic practice of Baroque, Classical, and Romantic periods. Exercises in writing and analysis. Recommended as review course for graduate students. Prereq: Consent of instructor.

4850 Jazz Composition (3) Prereq: Music 4114 and consent of instructor.

MUSIC HISTORY AND LITERATURE

1210-20 Orientation in Music Appreciation (3, 3) 1210—Developing perceptive listening skills through study of materials of music, musical styles, and musical aesthetics. Illustrative examples selected from fourth through the seventeenth centuries. 1220—Introduction to masterworks of music from 1600 to 1900. Prereq: 1210 or consent of instructor.

1320-20-30-40 History of Music (3, 3, 3, 3) 2310 to 1600, 2320 to 1600-1800. 2330 to 1800-1900. 2340 to 1900 to present. Requires musical background. Prereq: Consent of instructor.

1340 Introduction to Music Literature (3) Acquaintance with basic terms of music and accepted masterworks and the technological approach. For music majors and minors only.

3120 Orientation in Music: Germany from 1750 (3) Historical study of German composers and their music from death of Bach to present. Prereq: 1210 or consent of instructor.

3121 Orientation in Music: The Twentieth Century (3) Examination and study of serious, popular, folk, and ethnic music of the twentieth century. Prereq: 1210 or consent of instructor.

3212 Orientation in Music: Music for the Theatre (3) Study of selected, representative music composed for Broadway stage, films, opera, and opera. Prereq: 1210 or consent of instructor.

3230 The Concerto (3) Survey of literature from seventeenth century to present.

3240 The Symphony (3) Survey of symphonic literature from predecessors of classical symphony to present.

2860 Chamber Music (3) Survey of chamber music from 1750 to present.

3271-81 History of Opera (3, 3) Dramatic, vocal and orchestral elements in opera of Italian, French, and German Schools. 3271—1600-1800. 3281—1800-present.

3340 Oratoria (3) Choral works other than those appropriate for use in church.

3350 Introduction to Afro-American Music (3) History of African music, blues, gospel music and Jazz with emphasis on Black artists and their contributions.

3950 Evolution of Jazz (3) Study of origin, development and styles of jazz music and its exponents.

4003-04-05 The Organ and Its Literature (3, 3, 3) The development of the organ and organ literature from the middle Ages to the present; problems of style and interpretation; pedagogical literature and methods; organ design. Prereq or coreq: 2310-20-30-40 and consent of instructor.

4200 Independent Study in Music History and Literature (1-3) May be repeated for credit. Prereq: Consent of department head.

4205 Survey of Music History (3) History of music with emphasis on genres, style changes, and culture. 4000. Covers the Western European tradition from 400-1000. Recommended as a review course for graduate students. Prereq: Consent of instructor.

4210 Music in the Romantic Period (3) Survey of music from Beethoven through post-Romantic instrumental and vocal styles.

4230 Contemporary Music: 1945 to Present (3) Survey of new and avant-garde music in Europe and America since World War II.

4241 American Music (3) American music from colonial times to present. Emphasis on twentieth century. Includes both folk and cultivated traditions. Prereq: 1210-20 or equivalent.


4290 Gregorian Chant (3) Chants of Latin rite. Masses and Offices examined as functional music as well as by type.

4310 History of Art Song (3) Survey of art song from fifteen century to 1900.

4315 Wind Chamber Music (3) Study of wind chamber music from 18th through 20th century. Emphasis placed on style interpretation, rehearsal techniques, programming and musical significance, both historical and theoretical.

4340-50 Works of Bach (3, 3) Detailed examination of sonatas, concertos, keyboard, and orchestral works; cantatas, motets, Passions and oratorios. 4340—Instrumental works; 4350—vocal works.

APPLIED MUSIC

Applied study is classified as Principal or Secondary. Students studying their principal (major) instrument register for credit appropriate to their program, 2-4 credit hours; students studying a secondary instrument register for 1 hour credit. Study at the principal level receives one hour of private instruction per week or a one-hour class lesson plus a half-hour private lesson. Determination of the mode of instruction rests with the department. Study at the secondary level receives one-
half hour private instruction per week or its equivalent in class instruction. Applied music courses do not permit non-credit registration nor may students elect non-conventional grading.

Non-music students will be accepted at the secondary level if they meet audition requirements established by area faculty (piano, voice, violin, etc.) and instruction time is available.

Undergraduate students seeking entrance to applied music courses must be concurrently registered for no less than nine credit hours in academic courses. Graduate students must be concurrently registered for no less than six credit hours in academic courses. Exceptions to these requirements may be made with the approval of the department head if applied music registration is necessary to completion of degree requirements.

Assessment in applied music is measured by proficiency (Jury) examination. Students who do not meet proficiency requirements at any level may be required additional study at that level. Course level and credit hours will be determined by the applied faculty.

All students studying applied music at the principal level are required to register for Music 2000 Solo Class. The requirements for this course are to attend scheduled concerts, recitals, master, repertoire, and solo classes and to perform at least once each quarter as partial fulfillment of applied music credit requirements.

Applied Music Fees: $20 per hour for half-hour lesson (1 credit hour) $40 per quarter for hour lesson (2-4 credit hours)

Computer registration and applied music fee payment must be verified in the Department of Music office no later than the end of the second day of classes of the fall, winter, and spring quarters and the first day of the summer terms in order to be accepted for applied music study.

Applied music fees are not refundable after lessons have been scheduled.

1500-2500-3500-4500-5500 Flute (1-4) May be repeated for credit.
1505-2505-3505-4505-5505 Oboe (1-4) May be repeated for credit.
1510-2510-3510-4510-5510 Bassoon (1-4) May be repeated for credit.
1515-2515-3515-4515-5515 Clarinet (1-4) May be repeated for credit.
1520-2520-3520-4520-5520 Saxophone (1-4) May be repeated for credit.
1525-2525-3525-4525-5525 Horn (1-4) May be repeated for credit.
1530-2530-3530-4530-5530 Trumpet (1-4) May be repeated for credit.
1535-2535-3535-4535-5535 Trombone (1-4) May be repeated for credit.
1540-2540-3540-4540-5540 Baritone (1-4) May be repeated for credit.
1545-2545-3545-4545-5545 Tuba (1-4) May be repeated for credit.
1550-2550-3550-4550-5550 Percussion (1-4) May be repeated for credit.
1555-2555-3555-4555-5555 Voice (1-4) May be repeated for credit.
1560-2560-3560-4560-5560 Violin (1-4) May be repeated for credit.
1565-2565-3565-4565-5565 Viola (1-4) May be repeated for credit.
1570-2570-3570-4570-5570 Cello (1-4) May be repeated for credit.
1575-2575-3575-4575-5575 String Bass (1-4) May be repeated for credit.
1580-2580-3580-4580-5580 Piano (1-4) May be repeated for credit.
1585-2585-3585-4585-5585 Harpsichord (1-4) May be repeated for credit.
1590-2590-3590-4590-5590 Organ (1-4) May be repeated for credit.
1595-2595-3595-4595-5595 Guitar (1-4) May be repeated for credit.
2599-3599-4599-5599 Composition (1-3, 1-3, 1-3, 1-3) May be repeated for credit. Prereq: Consent of instructor.
3597-4597-5597 Composition with Electronic Media (1-3, 1-3, 1-3) May be repeated for credit. Prereq: 3199 and consent of instructor.

ENSEMBLES
All students studying applied music are required to perform in a major musical organization each quarter. String, woodwind, brass, and percussion students must be enrolled in an instrumental organization; voice students in a choral organization, opera workshop or opera theatre.

A student's preference for musical organization will be honored whenever possible, but factors considered in making the assignment will include playing ability, specific needs of various organizations, and previous performance experience at the University.

3600-5600 Small Ensemble (1, 1) May be repeated for credit.
3601-5601 Woodwind Choir (1, 1) May be repeated for credit.
3602-5602 Brass Choir (1, 1) May be repeated for credit.
3604-5604 Jazz Ensemble (1, 1) May be repeated for credit.
3606-5606 Trombone Choir (1, 1) May be repeated for credit.
3607 Trombone Ensemble (1) May be repeated for credit.
3610-5610 Percussion Ensemble (1, 1) May be repeated for credit.
3612-5612 Baroque Ensemble (1, 1) May be repeated for credit.
3620-5620 UT Singers (1, 1) May be repeated for credit.
3630-5630 Chamber Singers (1, 1) May be repeated for credit.
3632-5632 Collegium (1, 1) May be repeated for credit.
3634-5634 Saxophone Choir (1, 1) May be repeated for credit.
3640-5640 Opera Theatre (1, 1) May be repeated for credit.
3642-5642 Opera Workshop (1, 1) May be repeated for credit.
3650-5650 Concert Band (1, 1) May be repeated for credit.
3652-5652 Campus Band (1, 1) May be repeated for credit.
3664-5664 Varsity Band (1, 1) May be repeated for credit.
3665-5665 Laboratory Band (1, 1) May be repeated for credit.
3667-5667 Marching Band (1, 1) May be repeated for credit.
3670-5670 Symphony Orchestra (1, 1) May be repeated for credit.
3680-5680 Concert Choir (1, 1) May be repeated for credit.
3682-5682 University Chorus (1, 1) May be repeated for credit.
3686-5686 Men's Glee Club (1, 1) May be repeated for credit.
3687-5687 Women's Chorale (1, 1) May be repeated for credit.
3699-5699 Accompanying (1, 1) May be repeated for credit.
5684 Campus Chorus (1) May be repeated for credit.

GRADUATE
The Department of Music offers the Master of Music degree in performance, composition, music theory, choral conducting, and Suzuki string techniques, and the Master of Arts degree in musicology and music theory. See the Graduate Catalog for admission and degree requirements.

5000 Thesis
5001 Choral Conducting Document (3)
5002 Non-Thesis Graduation Completion (3-15)
5010 Organ Literature Seminar (3)
5012-22-32 Pedagogy of Voice (2, 2, 2)
5020 Piano Literature Seminar (3)
5030 Choral Literature Seminar (3)
5040 Vocal Literature Seminar (3)
5050 Graduate Recital (3)
5051 Opera Performance (3)
5052 Vocal Chamber Music Performance (3)
5053 Choral Conducting Performance (3)
5054 Lecture-Recital (3)
5055-56 Practicum for Instrumental Conductors (1, 1)
5057 Instrumental Conducting Seminar (3)
5060 Seminar in Choral Performance (3)
5070 Opera Production (1-3)
5080 Instrumental Conducting Performance (1)
5090 Special Topics in Performance (1-3)
5100 Independent Study in Music Theory (1-3)
5111 Advanced Harmony (3)
5114 History of Music Theory (3)
5116 Musical Styles (3)
5121 Analytical Techniques (3)
5125 Practicum in Computers and Music Research (3)
5150 Seminar in Music Theory (3)
5200 Independent Study in Music History and Literature (1-3)
5210 Introduction to Music Research (3)
5220 Seminar (3)
Organizational Psychology Program
See Graduate School.

Philosophy (745)
Professors: J.W. Davis (Head), Ph.D. Emory; R.B. Edwards, Ph.D. Emory; M.H. Moore (Emeritus), Ph.D. Chicago; D. Van de Vate, Ph.D. Yale.
Assistant Professors: J.O. Bennett, Ph.D. Tulane; S.M. Cohen, Ph.D. Northwestern; A.M. Emmitt, Ph.D. Ohio State; H.P. Hamlin, Ph.D. Georgia; L.R. Hardeguy, Ph.D. Texas; E.R. Jones III, Ph.D. Chicago; J.E. Noll, M.A. Ohio State; D.E. Ost, Ph.D. Texas; S.J. Reaven, Ph.D. California (Berkeley).
Instructor: M.L. Osborne, M.A. Bryn Mawr.

Philosophy seeks to understand humans, the world, their relations. It involves (1) use of logical and scientific methods, (2) appreciation of all values, (3) history of ideas, (4) philosophical systems. Philosophy is an appropriate major for students wishing a broad education, and those preparing for careers as writers (whether journalistic or literary), lawyers, ministers, teachers, in various types of political and government service, and in non-technical positions in business and industry. A major in philosophy implies a balanced program in the humanities, natural and social sciences. Graduate students should read French or German, preferably both; other ancient or modern languages are useful and necessary for some advanced work.

UNDERGRADUATE
Major: 36 hours in courses numbered 2000 and above. Majors should discuss their program with a member of the philosophy faculty.
Minor: 24 hours in courses numbered 2000 and above. It is suggested that minors discuss their programs with a member of the philosophy faculty.

American Studies. See Cultural Studies.

Russian and East European Studies. See Cultural Studies.

1510 Introduction to Philosophy: Human Nature and Values (4)

1520 Introduction to Philosophy: Consciousness and Reality (4) May be taken before 1510.

1600 Topics in Philosophy (4) May be repeated once for credit.

2310 Elementary Ethics (4) Theories of ethical values.

2410 Art and Experience (4) Introduction to various understandings of art.

2510-20 Elementary Logic (4, 4) 2510—Traditional or modern deductive logic, informal fallacies, uses of language, definitions. (2510 is recommended as introductory for students with mathematical aptitude), 2520—Inductive reasoning, elements of scientific method and statistical inference.

3111 Ancient Western Philosophy (4)

3121 Medieval Philosophy (4)

3131 Seventeenth- and Eighteenth-Century Philosophy (4)

3141 Nineteenth- and Early Twentieth-Century Philosophy (4)

3151 Contemporary Philosophy (4) Survey of recent movements in philosophy.

3270 Russian Philosophical and Theological Thought (4) Same as Russian 3270 and Religious Studies 3270.

3311-12 American Philosophy (4, 4) 3311—Colonial to late nineteenth century; 3312—Late nineteenth century to present.

3320 Philosophy of Law (4) Nature, sources, function of law.

3330 Philosophy of History (4) Speculative and critical aspects of philosophy with history.

3410 Philosophical Ideas in Literature (4) Philosophical assumptions and implications in major literary works.

3420 Philosophy of Literature (4) Study of the nature, functions, value and epistemic principles of literary arts.

3430 Concepts of Woman (4) Examination of some of theoretical foundations of feminism and anti-feminism.

3440 Social Ethics (4) Ethical theory as related to politics, economics, education, law, religion and the family.

3510 Existentialism (4)

3550 Marxism as Philosophy (4)

3570 Social and Political Philosophy (4) Philosophical problems relating to nature and justification of social policies and institutions.

3611 Religious and Philosophical Issues in Medical Ethics (4) (Same as Religious Studies 3611.)

3650 Philosophy and Religion in India (4) (Same as Religious Studies 3650.)

3660 Buddhist Philosophy and Religion (4) (Same as Religious Studies 3660.)

3671 Religion and Philosophy in China (4) (Same as Religious Studies 3671.)

3690 Philosophy of Religion (4) Analysis of basic issues of religion. (Same as Religious Studies 3690.)


3740-50 Conceptual History of Science (4, 4) 3740—The Scientific Revolution: historical evolution of thought in astronomy, mechanics, and philosophy of nature up to Newton. 3750—The development and decline of Newtonian science: historical evolution of thought on the nature of matter and of light, and on epistemology. Eight hrs of physical science or consent of instructor.

3770 Introduction to Philosophy of Science (4) Standard topics in philosophy of science: scientific method, nature of laws and theories, problem of induction, explanation, measurement. No background in logic is presupposed.

3810 Introductory Symbolic Logic (4) Techniques for formal analysis of deductive reasoning (propositional logic and quantification theory).

3910 Contemporary Aesthetics (4) Philosophical discussion of contemporary art.

4000 Special Topics (4) A student- or instructor-initiated course to be offered at convenience of department. Subject matter to be determined by mutual consent of students and instructor with approval of department. Prerequisites to be determined by department. May be repeated for credit.

4101 Foreign Study (1-16) See page 187.

4102 Off-Campus Study (1-16) See page 187.

4103 Independent Study (1-16) See page 187.

4111-21 Modern Religious Philosophies (4, 4) (Same as Religious Studies 4111-21.)

4310 Intermediate Ethics (4) Topics in meta-ethics or ethics.

4320-71 Theoretical Issues in Medical Ethics (4, 4) 4370—Prereq: 2310 or 3611 or consent of instructor. 4371—Prereq: 4370 or consent of instructor. (Same as Religious Studies 4370-71.)

4410 Plato (4) Prereq: Eight hrs of philosophy or consent of instructor.

4420 Aristotle (4) Prereq: Eight hrs of philosophy or consent of instructor.

4450 Continental Rationalism (4) Prereq: Eight hrs of philosophy or consent of instructor.

4480 British Empiricism (4) Prereq: Eight hrs of philosophy or consent of instructor.

4470 Kant (4) Prereq: Eight hrs of philosophy or consent of instructor.

4480 Advanced Topics in Existentialism and Phenomenology (4) Prereq: Eight hrs of philosophy or consent of instructor.


4511 Advanced Topics in Logic (4) Prereq: Consent of instructor. May be repeated for credit.

4610 Philosophical Analysis (4) Prereq: Eight hrs of philosophy or consent of instructor.

4620 Philosophy of Mind (4) Problems of mind and body in relation to consciousness and personal identity. Prereq: 8 hrs of philosophy or consent of instructor.

4630 Philosophy of Language (4) Prereq: Eight hrs of philosophy or consent of instructor.

4710 Philosophy of Natural Science (4) Consideration of standard topics pertinent to natural science. Prereq: Eight hrs of philosophy or consent of instructor.

4720 Philosophy of Social Science (4) Examination of methods of inquiry and modes of explanation in social sciences. Prereq: 3770 or two years of natural science.

4810 Metaphysics (4) Prereq: 8 hrs of philosophy or consent of instructor.

GRADUATE

5000 Thesis

5050 Symbolic Logic (4)

5080 Philosophy of Logic (4)

5110-20-30-40-50-60 Studies in History of European Philosophy (4, 4, 4, 4, 4, 4)
Astronomy (150)

2110-20-30 Introductory Astronomy (4, 4, 4) Surveys astronomical data and theories. 2110-20 concentrate on the solar system. 2130 introduces stellar astronomy including binary and variable stars clusters and nebulae. It is recommended that the courses be taken in sequence. 4 hrs including demonstration lab.

2118-28-38 Honors: Introductory Astronomy (4, 4, 4) Observation and theories of matter and space in the universe. Planets, stars, and the interstellar medium. Must be taken in sequence. 3 hrs lecture-discussion; 2 hrs lab per week. Coreq: Math 1810-20-30 or equivalent.

4110-20 Astronomy (3, 3, 3) Physics of stars and interstellar matter, planets and interplanetary matter; atmospheres, interiors, and evolution; nebulae, quasars, pulsars, etc. Observational data and their interpretation. Current developments. Approach will be interdisciplinary. Acceptable for major credit in physics. Prereq: Physics 2330 and consent of instructor.

Physics (773) UNDERGRADUATE

The undergraduate program in physics is designed to give the student a wide background which will permit ready specialization in various areas such as nuclear physics, solid state physics, high energy physics, molecular physics, etc. Students planning concentration in major courses are urged to consult advisers in the Department of Physics prior to registration in freshman year with regard to selection of proper first course in physics.

Major: 38-38 and Mathematics 1840-50-60 are prerequisites to a major in physics which includes the following courses: Physics 2318-28-38, Mathematics 2610-30-40, Math 2210-20; either Physics 3710-20-30 or 4110-20-30, 4210-20; and at least six hours from 3510-20-30, 3610-20, 4230-40, 4510-20-30, 4540-50. Physics 1310-20-30 or Basic Engineering 1310-20-30 may be substituted for Physics 1318-28-38 and Physics 2310-20-30 may be substituted for Physics 2318-28-38 as a graduation requirement. Transfer students from other schools or departments may substitute 2510 and 1330 for 1310-20-30 or 1318-28-38.

A major in physics with a concentration in health physics includes Physics 2310-20 or 2318-28, 3310-20, 4210-20, 4710-20, and Mathematics 2840-50-60. It is suggested that students also take Chemistry 1110-20-30, 3211-21-31, 3219-29-39, and 12 hours of an approved biological science.

Minor: A minor in Physics shall consist of Physics 2310-20 or 2318-28 and 15 hours from physics and astronomy courses number 1200 and above. Specialization provisions in the major statement also apply to the minor.

An Engineering Physics Curriculum is also offered. The program is described on page 131 and listed in tabular form on page 131.

1210-20-30 Introductory Physics (4, 4, 4) General course for students whose major falls outside the physical sciences. Concepts of physics developed by observation of inorganic and logic rather than by mathematics analysis. Specific areas covered in the first quarter are mechanics, heat and energy. In the second quarter wave motion, sound, electricity and magnetism, and light are discussed. In the third quarter the main emphasis is on modern physics. It is recommended that the courses be taken in sequence. 1210-20 represent a survey of classical physics and are recommended as an introduction to the discipline for liberal arts non-science majors.


1410-20-30 Nature of the Physical World (4, 4, 4) Introductory course covering the concepts of physical sciences which enables a student to establish a unified picture of the physical universe. In the first two quarters of this course, electricity, and wave motion are developed and applied to such varied fields as solar systems, atomic and molecular physics, behavior, reaction, and radioactivity in the atmosphere and in the earth's crust, and to stellar and galactic phenomena. In the third term these principles are applied in more detail to such topics as nuclear energy, cosmology, atmospheric and oceanic phenomena, drifting continents and science and society. May be taken out of sequence only with consent of instructor. 4 hrs including demonstration lab.

1450 Physics of Athletic Activity (4) Principles of physics, particularly mechanics and heat, are introduced. Discussion of these ideas will emphasize their role in physical activities, particularly sports-related. Core course topics include statics, equilibrium, and angular motion, momentum, force work and energy. 4 hrs lecture-demonstration lab.

1810 Physics of Music (4) Production, transmission, and reception of sound waves. Frequency, intensity, timbre, basic acoustics of instruments and voice. 4 hrs lecture and demonstration lab.

2210-20-30 Elements of Physics (4, 4, 4) 2210-30-30: Electricity and magnetism, sound waves. 2230-30-30: Optics, atomic and nuclear physics, radiation
protection. Basic physical principles and applications required in pre-medical, pre-nursing, pharmacy, and pre-veterinary programs. Must be taken in sequence. Prereq: Math 1550-60 or Math 1645 (or equivalent honors courses). 3 hrs lecture and 3 hrs lab.

2240-50-60 Elements of Physics for Architects (4, 4, 4) 2240—Statics, dynamics, properties of fluids; coreq: Math 1840 or 1560. 2250—Heat and thermodynamics, sound and wave motion, optics; coreq: Math 1850 or 1560. 2260—Electricity and magnetism, alternate energy topics. Basic physical principles with applications particularly as applied in architecture. Limited to students in School of Architecture. Should be taken in sequence. 3 hrs lecture. 3 hrs lab.

2310-20-30 Fundamentals of Physics: Electricity, Waves and Optics, Modern Physics (3, 3, 3) Required of all engineering students. 2310—Electricity. 2320—Waves and Optics. 2330—Modern Physics. Must be taken in sequence. Prereq: 1310-20-30 or Basic Engineering 1310-20-30, or Physics 2510; coreq: Math 2610; 2810-20. 3 hrs lecture, 2 hrs laboratory-recitation per week.

2318-28-38 Honors: Fundamental Physics: Electricity, Waves and Optics, Modern Physics (4, 4, 4) Honors course designed for selected students admitted on basis of performance in 1318-28-38, 1310-20-30, and Engineering 1310-20-30, 2318—Electricity and magnetism, alternate energy topics. Basic physical principles with applications particularly as applied in architecture. Limited to students in School of Architecture. Should be taken in sequence. 3 hrs lecture, 2 hrs lab per week.

2510 Mechanics (5) Statics, kinematics, Newton's laws of motion, energy, rotation. 4 hrs lecture, 1 recitation, 3 hrs laboratory-problem sessions. Prereq: Math 1440 or equivalent. 2510 satisfies prerequisites for Physics 2310, although physics majors should also take Physics 1330 as a prerequisite to the major.

3210-20-50 Mechanics (3, 3, 3) 3210—Statics, kinematics, and dynamics of a particle; 3220—Statics, kinematics, and dynamics of systems of particles or rigid bodies; 3250—Lagrangian and Hamiltonian equations of motion. Must be taken in sequence. Prereq: Math 2230 and Math 2860.

3230 Heat and Thermodynamics (3) Concepts of temperature and heat; laws of thermodynamics; applications of laws to simple physical and chemical problems. Prereq: 3230, 3230 or 2330 and calculus; 3210-20 or instructor's consent.


3510-20-30 Physical Measurements (3, 3, 3) Laboratory measurement of some physical quantities. Theory supplied where necessary. Prereq: Math 2010-30 or 2210-20-30, and calculus; 3510 for 3520 and 3530. 3 labs.

3610-20 Electronics (3, 3) Electronic components and circuits of interest to physicists. Prereq: Math 2010-30 or 2210-20-30 and calculus. 3 labs.

3630 Nuclear Electronics Laboratory (3) Elementary circuits of interest in nuclear instrumentation are designed and built, and their characteristics are tested as a function of various parameters. Prereq: 3610-20.

3710-20 Introduction to Atomic and Nuclear Physics (3, 3, 3) 3710—Special relativity and early quantum theory; 3720—Atomic and molecular physics; 3730—Atomic and nuclear physics. Prereq: Math 2860 and Physics 2320 for 3710; 2338 or 3710 for 3720-30.

3990 Junior Seminar (1-3) Topic of current interest. May be repeated for credit with consent of department.

4040 Foundation of Physics (3) Selected topics from history and philosophy of classical and modern physics. Prereq: One year of general physics and consent of instructor. Required of M.A.C.T. candidates.

4110-20-30 Introduction to Quantum Mechanics (3, 3, 3) Introduction to fundamental principles of quantum mechanics and methods of calculation. Application to atomic, molecular, and nuclear physics. Prereq: 2330 or equivalent, Math 4250.

4140 Elementary Nuclear Physics (3) General properties of nuclei, two-nucleon systems, nuclear forces, nuclear models, nuclear reactions, nuclear disintegrations and beta-decay, nuclear spin and magnetism. Prereq: 3730 or 4120.

4160 Physical Acoustics (4) Considerations fundamental to detailed investigation of any branch of acoustics; propagation of acoustic waves in the insonic, the audible, the ultrasonic, and the hypersonic ranges of frequencies. 3 hrs and 1 lab. Prereq: 3210-20-30.

4210-20-50 Electricity and Magnetism (3, 3, 3) Intermediate level electrostatics; steady and alternating currents; laws of electromagnetism; Maxwell's equations; radiation of electromagnetic waves; reflection and refraction; electromagnetic fields of moving charges. Must be taken in sequence. Prereq: Math 2320 or 2220 and Math 2830.

4220-40 Modern Optics (4, 4) 4230-Geometrical Optics: Reflection and transmission of light at a dielectric interface; paraxial theory of interfaces, lenses, and mirrors; thick lenses, lens systems, ray tracing; polarization; imagery; laser light. 4240—Physical Optics: Mathematics of wave motion, superposition of waves; interference; Fraunhofer and Fresnel diffraction. Fourier optics; holography. Prereq: 4210 or consent of instructor. 3 hrs lecture and 3 hrs lab.

4510-20-30 Atomic Physics Laboratory (3, 3, 3) Experiments in fundamental particle physics, photoemission, conduction of electricity through gases, atomic and molecular spectroscopy, X-ray, Prereq or coreq; 3710-20-30. 3 labs.

4540-50 Experimental Nuclear and Radiation Physics (4, 4) Interaction of charged particles and electromagnetic radiation with matter; theory and characteristics of various detectors; statistics of counting, nuclear properties. Experiments illustrate recent techniques for investigating the nucleus and nuclear radiation. 1 hr lecture, 6 hrs lab. Prereq: Math 2330.

4580 Principles of Non-Destructive Testing (3) Detection and characterization of discontinuities in materials by non-destructive physical measurements. Ultrasonic, electromagnetic, holographic, and penetrating radiation techniques are discussed. Prereq: 2310-20-30 or consent of instructor. (Same as Engineering Science and Mechanics 4580.)


4918-28-28-48-58-68-78-88-98 Honors: Research and Independent Study (1 hr each) Designed for excellent undergraduate majors. Provides opportunity for research and independent study with faculty guidance. Special consent of department is required. Maximum credit 9 hrs.

4990 Senior Seminar (1-3) Topic of current interest. May be repeated for credit with consent of department.

GRADUATE
General requirements for the master's degree and doctoral program are found in the Graduate Catalog.

5000 Thesis
5002 Non-Thesis Graduation Completion (3-15)
5080 Graduate Research Participation (3)
5110-20-30 Introduction to Theoretical Physics (3, 3, 3)
5210-20-30 Advanced Modern Physics (3, 3, 3)
5310-20-30 Advanced Dynamics (3, 3, 3)
5410-20-30 Electromagnetic Theory (3, 3, 3)
5440 Experimental Methods of Infrared and Raman Spectroscopy (3)
5510-20-30 Advanced Thermodynamics and Statistical Mechanics (3, 3, 3)
5610-20-30 Mathematical Methods in Physics (3, 3, 3)
5640 Numerical Methods in Physics (3, 3)
5720 Physics of Polyatomic Molecules (3)
5910-20-30 Special Problems (3, 3, 3)
5911-31 Special Problems in Teaching of Physics (1, 1)
5990 Seminar (1)
6000 Doctoral Research and Dissertation
6110-20-30 Quantum Mechanics (3, 3, 3)
6210-20-30 Nuclear Structure (3, 3, 3)
6310 Electromagnetic Theory of Light (3)
6320 Special Relativity (3)
6330 General Relativity (3)
6420 Advanced Topics in Classical Theory (3)
6430 Advanced Topics in Quantum Theory (3)
6500-10 Electrical Conduction in Gases and Plasma Physics (3, 3)
6610 Interaction of Electrons with Gases (3)
6620 Interaction of Electrons with Solids (3)
6630 Interaction of Radiation with Matter (3)
6710-20-30 Advanced Solid State Physics (3, 3, 3)
6810 Vibration Problems in Molecular Spectra (3)
6820 Molecular Vibration-Rotation Theory (3)
United States Government and Politics/Public Administration

2510-20 United States Government and Politics (4, 4) 2510—Foundations: the Constitution, federalism, separation of powers, campaigns and elections, parties, interest groups, the media, public opinion. 2520—Institutions: Executive, legislative, judiciary, and bureaucracy at national, state, and local levels.

2518-28 Honors: United States Government and Politics (4, 4) Honors course designed for students of superior ability and interest. Entrance into 2518 requires a B average; seniors entering freshmen will be accepted on the basis of placement scores and high school record. A grade of B in 2518 is necessary for entrance into 2528.

2530 Tennessee Government and Politics (4) 3545 United States Constitutional Law: Sources of Power and Restraint (4) Analysis of judicial review, constitutional powers of President and Congress, federalism, sources of regulatory authority, and constitutional protection of political rights. 2510-20 desirable as preceding courses.


3555 Minority Group Politics in the United States (4) Content varies from quarter to quarter. May be repeated up to a maximum of 8 hrs credit with consent of department.

3565 Introduction to Public Administration Organization and Management (4) Organization and decision-making theory, line and staff services, politics of organization, leadership, personnel and fiscal management, administrative responsibility. 2510-20 desirable as preceding courses. (Same as Water Resources Development 3565.)

3566 Public Administration and the Policy-Making Process (4) Public bureaucracies and the policy-making process, their political environments, administrative problems associated with policy making. 2510-20 are desirable as preceding courses.

3710 State Politics (4) Focus on formal and informal setting of state government: governors, courts, legislatures, and state administrators. Attention will be paid to state government's role in formulating, enacting, and implementing state policy.

3720 State Government and Policy Making (4) Nature and functions of the institutions of state government: governors, courts, legislatures, and state administrators. Attention will be paid to state government's role in formulating, enacting, and implementing state policy.

3750 The Urban Politic (4) Analysis of political institutions and processes in metropolitan areas.

3780 Urban Policy Process (4) Analysis of urban problems and policies in metropolitan areas.

3880 American Political Thought (4) Examination of role of selected political ideas, doctrines, and themes in America, emphasizing their development and relationships to diverse political interests.

4410 Law and the Administrative Process (4) Power of, procedures of, controls over administrators.

4535-36 Political Attitudes, Opinions and Communication (4, 4) Nature, development, formation and distribution of political attitudes and opinions; role of leadership, persuasion, and communication in opinion-policy process.

4540-50 Presidency, Congress and Public Policy (4, 4) The Presidency and Congress within framework of policy-making process.

4545-46 The Judicial Process (4, 4) The study of courts as components of political systems, and public policy formulation through judicial decision making. 2510-20 desirable as preceding courses.

4575 Special Topics in United States Government and Politics (4) May be repeated up to a maximum of 8 hrs credit with consent of department.

4610 Budgetary Process (4) Fiscal planning, budget and expenditure processes in government, policy formulation and administrative implications.

4620 Public Personnel Administration (3) Development of the merit system in government, career systems, public personnel management functions, organization for personnel management.

4740-50-60 Politics and Elections (3, 3, 3) 4740—Structure and function of party system; nominations and campaigns. 4750—Voting behavior of the electorate.

4940 Politics and the Environment (4) Examination of formulation and implementation of public policies relating to physical environment with emphasis upon water and air pollution control.

Comparative Government and Politics

3605 Political Change in Developing Areas (4) Characteristics and problems of political changes with primary focus on developing areas.

3615-16 Dynamics of Black African Politics (4, 4)

3621-22 Politics of Asian States (4, 4)

3625-26 Latin American Government and Politics (4, 4)

3631-32 Government and Politics of the Soviet Union (4, 4)

3635-36 Politics in Western Democracies (4, 4) Political culture, patterns, and institutions of Western democratic systems.

3641 Government and Politics of Middle East and North Africa (4)

3795 Contemporary Middle East (4) (Same as History 3795.)

4665-66 Policy Making in Democracies (4, 4) Comparative approach to theory and process of making public policies.

4875 Special Topics in Comparative Government and Politics (4) May be repeated up to a maximum of 8 hrs credit with consent of department.

International Relations

3701-02 Introduction to International Relations (4, 4) 3701—Methodology and background. 3702—International processes and institutions including war, diplomacy, law and organization.

3712-22 U.S. Foreign Policy Process (4, 4) Processes whereby U.S. foreign policies are made and implemented, focusing on interaction within federal bureaucracy and between the President, Congress, the press, and public opinion.

3790 Contemporary Diplomatic and Military Problems (4) Analysis of current international events.

3796 Contemporary Problems of Soviet Foreign Policy (4)


4711 International Law (4)

4727 Politics of Inter-American Relations (4) Analysis of selected theoretical and policy issues concerning international relations in the Americas with emphasis upon imperialism, intervention, and the Cuban revolution, nationalism, foreign assistance, trade and economic integration.

Political Theory and Methodology

3801 Studies in Ancient Political Thought (4) Classical Greek and Roman political thought.
UNDERGRADUATE

Major: (Concentration in General Psychology) Designed to give students a broad and current background in the science and application of psychological methods and principles. It is particularly suited for students who plan careers in areas such as business, law, public relations, journalism, or who for other reasons desire a liberal education concentrating on psychology. Psychology 2500 and two courses from 2500-30-40 or 2518-29 are prerequisite to a major consisting of Psychology 3150 or 4150, at least 4 hours of laboratory, field, or practicum courses, and 32 or more hours of upper-division psychology courses.

(Concentration in Academic Psychology) Designed to prepare students for advanced work in the scientific, professional, and college level teaching areas of psychology. Prerequisites to the major include Psychology 2500, two courses from 2520-30-40 or 2518-29, Mathematics 1540-50-60 or 1840-50-60, and Biology 1210-20. The major consists of Psychology 3150 or 4150, 8 hours of laboratory, field, or practicum courses, and 28 or more hours of upper-division courses, of which 12 hours must be in courses at the 4000 level.

Minor: A minor in psychology shall consist of Psychology 2500 and 20 additional hours from 3000- and 4000-level courses.

Honors Program in Psychology. A two-year (Junior-Senior) program leading to the B.A. degree. Objective of the Honors Program is to enable superior students to accelerate development of grasp of science of psychology. Program encourages independent study.

Eligibility: Selection of participants is determined by Undergraduate Honors Committee. The interested student should apply to the psychology department. Successful applicants usually have a G.P.A. of at least 3.0. Requirements: Psychology 2500 or 2518 and one other 2000-level course in psychology, 3150, and one quarter of laboratory or field experience. Honors students will complete Psychology 4948-58-68 and Psychology 4978-88-98. Completion of the Honors Program is dependent upon submission of an acceptable Honors research thesis and passing of a final Honors examination.

2500 General Psychology (4) An introduction to psychology, with emphasis on the development, methods, and contributions of the major movements and ideas which define contemporary psychology.

2518-29 Honors: General Psychology (4, 4) First quarter an enriched survey of general psychology. Second quarter participation is psychological research, either individually or arranged. Prerequisites for 2518: Minimum ACT Composite 28; GPA 3.2. Prerequisite for 2528: Admission by consent of department.

2520 Biological Foundations of Behavior (4) Survey of theories and research pertaining to the biological foundations of behavior. General psychology recommended.

2530 Psychology as a Social Science (4) Introduction to individual behavior and experience in a social context. 2500 recommended.

2540 Psychology of the Individual (4) Study of individuals, their behavior, and the progressive changes in behavior that occur in natural envi-
4150 Probability Models in Psychology (4) Introduction to use of probability models in theory of binary test items, differential psychology, comparison of different populations in specific psychological parameters, individual choice behavior, and testing of psychological hypotheses in human and animal behavior; reliability theory and regression theory. Prereq: Math 1560 or 1860 or consent of instructor.
4230 Sensory Processes and Perception (4) Survey of sensory and perceptual processes with emphasis on audition and vision. Prereq: 3150; 2520 recommended.
4239 Laboratory in Sensory Processes and Perception (2) Prereq: or coreq: 4230.
4460 Organizational Industrial Psychology (3) (Same as Management 4460.)
4510 Personality Theories (4) Prereq: 3650 or 3660.
4520 Personality and Social Systems (4) Prereq: 2540.
4610 Group Processes (3) Study and experience of theory and techniques of group processing and facilitation. Those participating in 4610 are expected to continue into 4620 and 4630. Prereq: 3616-26 and consent of instructor.
4620-30 Seminar in Group Processes (3, 3) Didactic and laboratory experience for those qualified for further training as group facilitators. Prereq: 4610 and consent of instructor.
4640 Psychological Tests and Measures (4) Theory and construction of individual and group measures; survey of various methods of assessment of intelligence, personality, special abilities, and educational achievement. Prereq: 3510.
4650 Symbolic Processes (4) Logic of signs and symbols; directed and associative thinking; memory, problem solving, and concept formation; nature, use, and development of language. Prereq: 3210 or consent of instructor.
4660 The Psychology of Language (4) Theories and descriptions of phonology, syntax, and semantics as applied to psychology and related disciplines. 4660 or linguistics background recommended.
4710 Physiological Psychology (4) Nervous system and physiological correlates of behavior. Prereq: One year of biology or zoology and Psychology 4710.
4719 Physiological Psychology Laboratory (4) Laboratory studies of nervous system and physiological correlates of behavior. Coreq: 4710.
4720 Comparative Animal Behavior (4) Methods and principles. (Same as Zoology 4720.)
4729 Comparative Animal Behavior Laboratory (4) Laboratory and field studies. Coreq: 4720. (Same as Zoology 4729.)
4750 Evolution and Ontogeny of Social Behavior (4) Genetic, evolutionary, ecological, and developmental processes as they apply to social organization and dynamics of vertebrates. Prereq: Consent of instructor.
4780 Psychology and Current Issues (4) Research and theory relevant to selected contemporary issues. 4 class hrs per week. Prereq: Consent of instructor.
4830 History and Systems of Psychology (4) Prereq: 9 hrs of upper-division psychology.
4850 Learning Theories (4) Historical and theoretical development of learning models. Prereq: 3210.
4860 Programmed Learning (3) (Same as Education C 1480.)
4870 Contemporary Research in Behavior of Women (4) Study of interaction of cultural and biological factors in determining the behavior of women, with emphasis on physiological mechanisms involved.
4880 Afro-American Psychology (4) Review and analysis of psychological literature on Afro-Americans. Prereq: Consent of instructor. (Same as Black Studies 4480.)
4900 Aspects of Urban Environment (4) (Same as Architecture 4900, Human Services 4900, and Real Estate 4900.)
4910 Senior Seminar in General Psychology (4) Integrative review of major problems in psychology. Intensive examination of selected topics. Prereq: Consent of instructor.
4948-58-68 Honors: Reading and Research (4, 4, 4) Honors candidates only.
4978-88-98 Honors: Senior Reading and Research (4, 4, 4) Honors candidates only.

GRADUATE
General requirements for the master's degree and doctoral degree are given in the Graduate Catalog.

5000 Thesis
5002 Non-Thesis Graduation Completion (3-15)
5017 Colloquium in Experimental Psychology (1)
5019-29-39 Laboratory Techniques in Experimental Psychology (3, 3, 3)
5050 Methods of Research in Applied Psychology (3)
5070 Seminar in College Teaching (2)
5079 Practicum in College Teaching (2)
5100 Developmental Psychology (3)
5105 Developmental Assessment (3)
5110 Clinical Aspects of Human Sexuality (3)
5111-12-13 Seminar in Current Issues in School Psychology (1, 1, 1)
5140-50-60 Psychoeducational Assessment (3, 3, 3)
5149-59-69 Practicum in School Psychology I (2, 2, 2)
5170-80-90 Proseminar in Organizational Psychology (3, 3, 3)
5200 Topics in Developmental Psychology (3)
5210 Readings in Psychology (1)
5220 Readings in Psychology (2)
5230 Readings in Psychology (3)
5240 Readings in Psychology (4)
5250 Readings in Psychology (5)
5260 Special Problems in Psychology (1)
5270 Special Problems in Psychology (2)
5280 Special Problems in Psychology (3)
5290 Special Problems in Psychology (4)
5300 Special Problems in Psychology (5)
5319 Field Work in School Psychology: Level I (2)
5325 Behavioral Interventions (3)
5340 Group Dynamics (3)
5350-60-70 Seminar in Psychology (3, 3, 3)
5400 Psychophysics and Scaling Methods (3)
5420-30-40 Advanced Psychological Statistics (3, 3, 3)
5450 Human Problems in Administration (3)
5490 Continuing Education in Mental Health (1-4)
5500 Fundamentals of Psychometrics (4)
5510 Instrumentation for Psychological Research (3)
Religious Studies (863)

Professors: R. S. Lusby (Head), B. D. Colgate (Rochester); D. L. Dungan, Th.D. (Harvard); R. V. Norman, Jr. (Associate Vice-Chancellor for Academic Affairs), Ph.D. (Yale).

Associate Professors: B. B. Daniels (Assistant Dean of the College of Liberal Arts), Ph.D. (Duke); W. L. Humphreys, Th.D. (Union); D. E. Linge, Ph.D. (Vanderbilt); C. Reynolds, Ph.D. (Harvard).

Assistant Professors: R. R. Earl, Jr., Ph.D. (Vanderbilt); J. K. Kim, Ph.D. (Chicago).


UNDERGRADUATE

Major: Two options are available in religious studies. One religious studies 2000-level course is a prerequisite for either option, and Religious Studies 4850 is required in both options.

The basic option consists of 36 hours of courses at the 3000 level or above (including 4850) with a minimum of 12 hours selected from courses listed below under History and Literature of Religions and a minimum of 12 hours selected from courses listed below under Methodological Religion. Majors are invited to discuss their programs with a member of the religious studies faculty.

The student-initiated option is to be specified in an individual program defined in consultation between each student and the Department of Religious Studies. At least 36 hours of courses at the 3000 level or above (including 4850) are required for this major. Students whose educational goals would best be served by such a major are encouraged to construct their own plans of study as early as possible. The student-initiated option is recommended for persons who plan to pursue graduate study in religion or a closely related field. Further details are available in the department office, located at 501 McClung Tower, or from any member of the religious studies faculty.

History and Literature of Religion: 3011, 3021, 3061-71, 3110, 3120, 3210-20, 3270, 3311-12, 3330, 3340, 3411-12-13, 3440, 3490, 3510-20, 3550, 3580, 3650, 3950, 3960, 3970, 3971, 3971, 3973, 3977, 4120, 4310, 4450, 4640, 4670, 4810-20.

Problems of Religion: 3600-10, 3611, 3620, 3690, 3715, 3720, 3740, 3750, 3760, 3780, 4101, 4102, 4103, 4111-21, 4370-71, 4410, 4540, 4610, 4810-20, 4850, 4940, 4950, 4960.

Minor: Twenty-four hours of courses at the 3000 level and above. It is suggested that students minor in religious studies discuss their programs with a member of the department faculty.

2610 Introduction to Religions of the World (4)

2611 Introduction to Ancient Near Eastern Religions (4) introduction to study of religion through selected ancient Near Eastern and Mediterranean traditions.

2612 Issues in Religious Studies (4) introduction to study of religion through selected religious problems and alternatives.

HISTORY AND LITERATURE OF RELIGIONS

3600-70-80 History of Western Religious Thought and Institutions (3, 3, 3) 3060—First century to fifth century, 3070—Sixth to eleventh century, 3080—Sixteenth century to 1900. (Same as History 3060-70-80.)

3110 Ancient Israel’s Historical and Religious Traditions (4) Political, religious, and cultural history and traditions of ancient Israel from earliest period to Exile.

3120 The Rise of Judaism (4) Political, religious, and cultural history and traditions of exilic and postexilic Israel, and early Judaism through 135 A.D. Later literature of Old Testament, Apocrypha, and Dead Sea Scrolls.

3210 Early Greek Mythology (3) (Same as Classics 3210.)

3220 Greek Mythology in the Classical Period (3) (Same as Classics 3220.)

3230 Roman Mythology (3) (Same as Classics 3230.)

3270 Russian Philosophical and Theological Thought (4) (Same as Russian 3270 and Philoso-

3311-12 Images of Jesus (4, 4) Introduction to ancient and modern portrayals of Jesus, understood within their cultural milieu. Must be taken in sequence.

3330 Making of the New Testament (3) Rise of institutional church and formation of New Testa-

3340 Judaism in the Common Era. (3) Survey of literature and traditions of Judaism in the Com-

College of Liberal Arts 229
Note to Majors and Minors in French, Italian, or Spanish and Minors in Portuguese. Students who have completed nine hours of upper-division courses in French, Italian, or Spanish literature at The University of Tennessee, or whose undergraduate work at other institutions must either (1) have a minimum grade point average of 2.0 in French, Italian, or Spanish before being accepted for a major's program, or (2) qualify by demonstrating during the first week of the quarter, not less than a minimum ability equivalent to a grade of middle C on the current examination in French or Spanish 2130 or French, Italian, or Spanish 2520.

All majors must take upper-division courses under more than one instructor, and must have an acceptable pronunciation and an adequate reading knowledge of the language.

Latin American Studies. See Cultural Studies.

Certification for Teaching French or Spanish in Tennessee
Consult Certification Clerk, Room 212 Claxton Education Building.

Arabic (127)

1510-20 Spoken Arabic (4, 4) Must be taken in sequence. Dictation will vary depending on instructor. Class meetings and 2 laboratory periods.

2110-20-30 Elementary Modern Standard (3, 3) Must be taken in sequence. 3 class meetings and 2 laboratory periods.

3510-20 Intermediate Modern Standard (4, 4)

3610 Islamic Literature in English Translation (4) Survey from origins to modern period of major Islamic literatures, especially Arabic, Persian and Turkish. Readings include The Arabian Nights, The Rubaiyat of Omar Khayyam and Gibran's The Prophet.

4101 Foreign Study (1-16) See page 187.

GRADUATE

5070-50-90 Hispano-Arabic Literature and Culture (3, 3, 3, 3)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

French (405)

Major: Consists of 36 hours in courses numbered 3110 or above. Students whose primary interest is literature must have the following courses (or their equivalent, with consent of the department): 3110-20-30 or 3810-20-30 (aspects or survey of literature, 9 hours); 3410 or 3420 or 3430 (intermediate composition and conversation, 3 hours); 4210 (phonetics, 3 hours); 4220 or 4230 (advanced grammar, 3 hours); 6 hours selected from courses 3410-20-30 (intermediate composition and conversation, 4220-30 (advanced grammar), or 4250-60-70 (linguistics); 6 hours of literature at the 4000 level; 6 additional hours selected from courses in literature, language, or civilization. With either of the above options, students may substitute Foreign Study (4101) for certain courses; students with special interests, such as comparative literature, may make certain substitutions with consent of the department.

Minor: Consists of 24 hours in courses numbered 3110 or above, including the following: 3110-20-30 or 3810-20-30 (aspects or survey of literature, 9 hours); 3410 (intermediate composition and conversation, 3 hours); 4210 (phonetics, 3 hours); 9 additional hours selected from courses in literature, language, or civilization. Students pursuing a minor are strongly advised to consult with a departmental advisor.

Courses which are the equivalents of the foreign language, Red 3, consent of the department; but courses in French literature in English translation may not be counted toward either a major or a minor.

1110-20-30 Elementary French (3, 3, 3) This sequence strongly recommended for students intending to take upper-division courses in French. Must be taken in sequence. 3 hrs. and 2 labs.

1510-20 Elementary French (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

1518-28 Honors: Elementary French (4, 4) Honors course for students of superior ability. 1518 not open to students who have taken French in high school. Freshmen are admitted on the basis of a diagnostic test or conference with the instructor, high school average, and performance on the ACT. This class will be held to a maximum of 15 so that each student may receive more attention. This class will cover the normal French program for the first year, but will be enriched whenever possible. Students will be expected to spend only the normal amount of time in preparation. Those who find the course too difficult may easily transfer to a regular class. Potential majors in French are urged to take this course. Students who pass 1510 with a grade of B or higher may take 1528 instead of 1520.

2110-20-30 Intermediate French (3, 3, 3) This sequence strongly recommended for students intending to take upper-division courses in French. Must be taken in sequence. 3 hrs. and 2 labs.

2510-20 Intermediate French (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2518-28 Honors: Intermediate French (4, 4) Honors course for students of superior ability in French. Incoming freshmen are admitted on the basis of a diagnostic test, high school average, and performance on the ACT. This class will be held to a maximum of 15 so that each student may receive more attention. Students will follow an enrichment program with continued emphasis upon speaking ability with special emphasis on reading, including literary selections. Must be taken in sequence. Students who earn an A or B in 2528 automatically receive credit for French 3000. Prereq: French 1110-20-30, 1510-20, 1518-28 or equivalent.

2610-20 Panorama of French Culture (4, 4) 2610: Topics include cultural forces which produced the French nation; art, literature, architecture, music under France I; enlightenment; and the culture. 2620: Deals with arts in Age of Reason and trends in French culture dur-
4250 Introduction to Descriptive Linguistics (3) Phonetics and phonemics, morphology and syntax. Types of languages, linguistic groups, dialects and dialect geography. Application of descriptive linguistics—field linguistics, dialect study; its practical use in learning languages and in language teaching. Introduction to transformational grammar. Prereq: 9 hrs of upper-division English or 9 hrs of upper-division courses in a modern European language. Consent of the German and French 3010-20-30, courses in literature in translation, and general courses in Latin and Greek requiring no knowledge of these languages), or consent of department. (Same as Spanish, German, and Russian 4250.)

4260 Introduction to Historical and Comparative Linguistics (3) (Same as Spanish, German and Russian 4260.)

4270 Romance Linguistics (3) Development of classical Latin through vulgar Latin into major Romance languages. (Same as Spanish 4270.)

4310-20-30 French Literature of Eighteenth Century (3, 3, 3) Prereq: 2130, 2520 or equivalent.

4350-60-70 Medieval French Literature (3, 3, 3) Medieval works in modern French texts. Prereq: 2130, 2520 or equivalent.

4410-20-30 French Civilization (3, 3, 3) Prereq: 2130, 2520 or equivalent.

4510-20-30 French Literature of Nineteenth Century (3, 3, 3) Prereq: 2130, 2520 or equivalent.

4610-20-30 Readings in French Literature (3, 3, 3)

4618-28 Honors: Readings in French Literature (3, 3, 3) For students who have completed 3130 or equivalent and have at least 3.0 on all university work. No credit for grade less than B.

4640-50-60 French Literature of Sixteenth Century (3, 3, 3) Prereq: 2130, 2520 or equivalent.

4710-20-30 French Literature of Twentieth Century (3, 3, 3) Prereq: 2130, 2520 or equivalent.

GRADUATE General requirements for the master's program are given in the Graduate Catalog.

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5011 Techniques in Literary Analysis (3)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5110-20-30 Old French (3, 3, 3)

5121 College Teaching of Romance Languages (3)

5151-61-71 Bibliography and Methods of Research (1, 1, 1)

5210-20-30 French Literature of Sixteenth Century (3, 3, 3)

5310-20-30 French Directed Readings (3, 3, 3)

5550-60-70 The Philosophes (18th Century) (3, 3, 3)

5410-20-30 The French Novel (3, 3, 3)

5450-60 Lyric Poetry of Nineteenth Century (3, 3)

5470 Baudelaire and the Symbolists (3)

5610-20-30 Trends in Contemporary French Literature (3, 3, 3)

5650-60 Advanced Syntax and Stylistics (3, 3)

5670 Problems in Romance Linguistics (3)

5710-20-30 Seminar in French Literature (3, 3, 3)

5910 Literary Criticism: Foundations of Romance Criticism (3)

Italian (584)

UNDERGRADUATE

Major: Consists of 36 hours in courses numbered 3110 or above, to include the following (or equivalents, with consent of the department): 3410-20-30 (advanced grammar, composition and conversation, 9 hours); 3110-20-30 or 3610-20 (aspects of Italian literature, at least 8 hours); 9 hours of literature at the 4000 level; 10 additional hours selected from courses in literature, language, or civilization. Students may substitute Foreign Study (4101) for certain courses; students with special interests, such as comparative literature, may make certain substitutions with consent of the department.

Minor: Consists of 24 hours in courses numbered 3110 or above, to include the following: 3410-20-30 (advanced grammar, composition, and conversation, 9 hours); 3110-20-30 or 3510-20 (aspects of Italian literature, at least 8 hours); 7 additional hours selected from courses in literature, language, or civilization.

Courses in Italian literature in English translation may not be counted toward either a major or a minor.

1510-20 Elementary Italian (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2510-20 Intermediate Italian (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2610-20 Panorama of Italian Culture (4, 4) 2610—Survey of Italian culture from Roman era through the 17th century, 2620—Survey of Italian culture in the 18th, 19th, 20th centuries.

3000 Italian Transition (3) Development of linguistic skills necessary for satisfactory work in courses above 3000. Recommended for students who feel they would benefit from additional training beyond 2520 in basic skills of reading, speaking and writing Italian.

3110-20-30 Aspects of Italian Literature (3, 3, 3) Prereq: 2520 or equivalent. Recommended for literature majors.

3210-30 Italian Literature in English Translation (3-3, 3-3) 3210—Sicilian School, the Florentine School, Dante, Petrarch, Boccaccio, Machiavelli, Tasso, Ariosto, Tasso, the Baroque through nineteenth century, commedia dell'arte, Vico Leopardi, 3330—Twentieth century, Carducci, Pirandello, Quasimodo, D'Annunzio, Croce, Moravia. No change in credit hrs after add deadline. Option of 4 hrs credit must present appropriate amount of extra work above that required for 3 hrs.

3410-20-30 Advanced Grammar, Composition, and Conversation (3, 3, 3) Laboratory work, drills, and tapes. Prereq: 2520 or equivalent.

3510-20 Aspects of Italian Literature (4, 4) Prereq: 2520 or equivalent. Recommended for literature majors.

4010-20 Italian Drama in English Translation (3-4) 4010—La commedia dell'arte and major works of Machiavelli, Metastasios, Alfieri, Go- doni. 4020—Twentieth-century theatre: operatic drama, the Grottesco, Pirandello, De Filippo, Frati. No change in credit hrs after add deadline. Option of 4 hrs credit must present appropriate amount of extra work above that required for 3 hrs.

4050-60-70 Dante and Medieval Culture (3, 3, 3) Readings and lectures in English for students majoring or minorin in other departments. Readings, research papers in Italian for students majoring or minorin in Italian. (Same as Comparative Literature 4050-60-70.)

4101 Foreign Study (1-16) See page 187.

4220 Petrarch (3) Prereq: 3130, 3520 or equivalent.

4230 Boccaccio (3) Prereq: 3130, 3520 or equivalent.

4330 History of Italian Language (3) Prereq: 3130, 3520 or equivalent.

4410-20-30 Literature of the Rinascimento (3, 3, 3) From Pulci to Tasso, the Quattrocento and the Cinquecento. Prereq: 3130, 3520 or equivalent.

4550 The Modern Novel (3) Prereq: 2520 or equivalent.

4580 The Modern Theatre (3) Prereq: 2520 or equivalent.

4610 Contemporary Theatre (3) Prereq: 2520 or equivalent.

4620 Contemporary Poetry (3) Prereq: 2520 or equivalent.

4630 Contemporary Prose (3) Prereq: 2520 or equivalent.

GRADUATE Read Graduate Catalog for requirements.

5011 Techniques in Literary Analysis (2)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5151-61-71 Bibliography and Methods of Research (1, 1, 1)

5610-20-30 Readings in Italian Literature (3, 3, 3)

5710-20-30 Seminar in Italian Literature (3, 3, 3)

Portuguese (811)

UNDERGRADUATE

Minor: A minor only is offered in Portuguese, consisting of 8 hours in the 3510-20 sequence (aspects of Portuguese literature) and 16 hours in the 4310-20-30 sequence (directed readings in Brazilian and Portuguese literature, a course of variable content which may be repeated for credit). Students may substitute Foreign Study (4101) for any of the above courses.

1510-20 Elementary Portuguese (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2510-20 Intermediate Portuguese (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

3510-20 Aspects of Portuguese Literature (4, 4) Prereq: 2520 or equivalent. Recommended for literature majors.

401 Foreign Study (1-16) See page 187.

4310-20-30 Directed Readings in Brazilian and Portuguese Literature (3, 3, 3) May be repeated with consent of instructor.

GRADUATE

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

Spanish (924)

UNDERGRADUATE

Major: Consists of 36 hours in courses numbered 3310 or above. Students whose primary interest is literature must have a minimum of 8 hours chosen from the following sequences: 3310-20-30, 3510-20,
or 3610-20 (aspects of Spanish American literature, or aspects or survey of Spanish literature, 8 hours); 3410 plus 3420 or 3430 (composition and conversation, 6 hours); 4210 (phonetics, 3 hours); 9 hours of literature at the 4000 level; 3 hours of civilization; sufficient additional hours selected from courses in literature, language, or civilization to fulfill the major requirement; a strong interest in language must have a minimum of 8 hours chosen from the following sequences: 3310-20-30, 3510-20, or 3610-20 (aspects of Spanish American literature, or aspects or survey of Spanish literature, 8 hours); 3410 (composition and conversation, 3 hours); 4210 (phonetics, 3 hours); 9 hours selected from courses 3420-20 (composition and conversation), 4220-30 (advanced grammar), or 4250-60-70 (linguistics); 3 hours of literature at the 4000 level; 3 hours of civilization; sufficient hours selected from courses in literature, language, or civilization to fulfill the major requirement. With either of the above options, students may substitute Foreign Study (4101) for certain courses; students with special interests in comparative literature may make certain substitutions with consent of the department.

Minor: Consists of 24 hours in courses numbered 3310 or above, including a minimum of 8 hours chosen from the following sequences: 3310-20-30, 3510-20, or 3610-20 (aspects of Spanish American literature, or aspects or survey of Spanish literature, 8 hours); 3410 (composition and conversation, 3 hours); 4210 (phonetics, 3 hours); sufficient additional hours selected from courses in literature, language, or civilization to fulfill the minor requirements. Students pursuing a minor are strongly advised to consult with a departmental adviser.

Courses which are the equivalents of the foregoing may be substituted with consent of the department; but courses in Spanish literature in Spanish translation may not be counted toward either a major or a minor.

1110-20 Elementary Spanish (3, 3, 3) This sequence is recommended for students intending to take upper-division courses in Spanish. Must be taken in sequence. 3 hrs and 2 labs.

1510-20 Elementary Spanish (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

1518-28 Honors: Elementary Spanish (4, 4) Honors course for students of superior ability. 1518 not open to students who have taken Spanish in high school. Freshmen are admitted on the basis of a diagnostic test or conference with the instructor, high school average, and performance on the ACT. This class will be held to a maximum of 15 so that each student may receive more attention. This class will cover the normal Spanish program for the first year, but will be enriched whenever possible. Students will be expected to spend only the normal amount of time in preparation. Those who find the course too difficult may easily transfer to a regular class. Potential majors and minors in Spanish are urged to take this course. Students who pass 1510 with a grade of B or higher may take 1520 instead of 1520.

2110-20-30 Intermediate Spanish (3, 3, 3) This sequence is strongly recommended for students intending to take upper-division courses in Spanish. Must be taken in sequence. 3 hrs and 2 labs.

2510-20 Intermediate Spanish (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2518-28 Honors: Intermediate Spanish (4, 4) Honors course for students of superior ability in Spanish. Incoming freshmen are admitted on the basis of a diagnostic test, high school average, and performance on the ACT. This class will be held to a maximum of 15 so that each student may receive more attention. Students will follow an enriched program with continuing emphasis upon speaking ability and with special emphasis on reading, including literary selections. Must be taken in sequence. Students who earn an A or B in 2520 automatically receive credit for Spanish 3000. Prereq: Spanish 1110-20-30, 1510-20, 1518-28, or equivalent.

2610-20 Panorama of Hispanic Culture (4, 4) 2610—Peninsular Spain from Roman invasion through 19th century, including Colonial period in Latin America. 2620—Highlights of 20th-century culture in both Latin America and Spain.

3000 Spanish Translation (3) Development of linguistic skills necessary for satisfactory work in courses above 3000. Recommended for students who feel they would benefit from additional training beyond 2130 or 2520 in basic skills of reading, speaking and writing Spanish.


3310-20-30 Aspects of Spanish American Literature (3, 3, 3) Study (not usually chronological) of various periods of the literature; emphasis upon the genres (poetry, novel, drama) varies. May be taken in place of 3510-20 or 3610-20. Prereq: 2130, 2520 or equivalent.

3410-30 Intermediate Composition and Conversation (3, 3, 3) Not offered for graduate credit.

3510-20 Aspects of Spanish Literature (4, 4) Study (not usually chronological) of various periods of the literature; emphasis upon the genres (poetry, novel, drama) varies. Prereq: 2130, 2520 or equivalent. Recommended for literature majors. Not offered for graduate credit.

3610-20 Survey of Spanish Literature (4, 4) Chronological study of the various genres (poetry, novel, drama) by periods from the medieval period to the present. May be taken in place of 3310-20-30 or 3510-20. Prereq: 2130, 2520 or equivalent.

4030 Masterpieces of Spanish Literature in English Translation (3) No foreign language credit.

4050-60-70 Hispano-Arabic Literature and Culture (3, 3, 3)

4101 Foreign Study (1-16) See page 187.

4110-20 Spanish Literature of the Golden Age (3, 3, 3) The picaresque novel; Cervantes, the Comedia.

4180-70-80 Advanced Conversation (2, 2, 2) Intensive training in prepared and spontaneous conversations. Subjects range from travel and current events to literature and aspects of national culture. Prereq: Completion of 9 hrs of courses on 3000 level.

4210 Phonetics (3) Prereq: 2130, 2520 or equivalent.

4220-30 Advanced Grammar (3, 3) Prereq: 2130, 2520, or equivalent.

4250 Introduction to Descriptive Linguistics (3) (Same as French, German and Russian 4250.)

4260 Introduction to Historical and Comparative Linguistics (3) (Same as French, German and Russian 4260.)

4270 Romance Linguistics (3) (Same as French 4270.)

4410 Spanish Civilization (3) Prereq: 2130 or equivalent.

4420-30 Latin American Civilization (3, 3) Prereq: 2130, 2520 or equivalent.

4450-70 Studies in Modern Spanish Style (3, 3) Prereq: 3410-20 or consent of instructor.

4510-20-30 Spanish Literature of Nineteenth Century (3, 3, 3) Prereq: 2130, 2520 or equivalent.

4618-38 Honors: Readings in Literature (3, 3) Prereq: 3330, 3520, 3620 or equivalent and at least 3.0 on all university work. No credit for grade less than B.

4710-20-30 Spanish Literature of Twentieth Century (3, 3, 3) 4710—Non-dramatic Prose. 4720—Drama. 4790—Lyric Poetry. Prereq: 2130, 2520 or equivalent.


GRADUATE

The Master's Program

See Graduate Catalog for requirements.

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5011 Techniques in Literary Analysis (3)

5070-80-90 Hispano-American Literature and Culture (3, 3, 3)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5110-20-30 Old Spanish (3, 3, 3)

5121 College Teaching of Romance Languages (3)

5151-61-71 Bibliography and Methods of Research (1, 1, 1)

5211-21 Don Quijote (3, 3)

5212-22-32 Golden Age Prose (3, 3, 3)

5231 The Exemplary Novels, Persiles y Sigismunda (3)

5250-60 The Generation of '98 (3, 3)

5270 The Contemporary Novel (3)

5310-20 Directed Readings (3, 3)

5311-21 Special Topics in Spanish or Spanish American Literature (3, 3)

5340 Problems in Hispanic Culture (3)

5510-20-30 Spanish Theatre after the Golden Age (3, 3, 3)

5550-60-70 Golden Age Theatre (3, 3, 3)

5610 Spanish American Prose to 1900 (3)

5611-21 Spanish American Lyric Poetry (3, 3)

5620-30 The Modern Novel in Spanish America (3, 3)

5631 Spanish American Essay (3)

5632 The Spanish American Short Story (3)

5633 Twentieth-Century Latin American Theatre and Film (3)

5640 Latin American Women Writers (3)
Russian

See Germanic and Slavic Languages.

Russian and East European Studies

See Cultural Studies.

Sociology (915)

Professors: D.R. Ploeg (Head), Ph.D. North Carolina; J.A. Black, Ph.D. Iowa; D.J. Champion, Ph.D. Purdue; W.E. Cole (Emeritus), Ph.D. Cornell; L. Eberson (Vice Chancellor for Planning and Administration), Ph.D. Pennsylvania; W.B. Jones (Emeritus), Ph.D. Vanderbilt; J.B. Knox (Emeritus), Ph.D. Harvard; S.E. Wallace, Ph.D. Minnesota.

Associate Professors: D.M. Beitz, Ph.D. Michigan State; D. Clevland, Ph.D. Michigan State; D.W. Hastings, Ph.D. Massachusetts; T.C. Hoot, Ph.D. Duke; R.G. Parrin, Ph.D. British Columbia; N.E. Shover, Ph.D. Illinois (Urbana).

Assistant Professors: S. Kurth, Ph.D. Illinois (Chicago); K.D. Van Liere, Ph.D. Washington State; S.E. Norland, Ph.D. Iowa; K.V. Fitter, M.A. Washington.

Instructor: D. Harris, M.A. Tennessee.

UNDERGRADUATE

Major: Consists of 36 upper-division hours in sociology. Eight lower-division hours in sociology are prerequisite to a major. The minor shall consist of 24 upper-division hours. Eight lower-division hours in sociology are a prerequisite to a minor.

Social Work: Students contemplating entrance into the field of professional social work will have an opportunity to plan their upper-division programs to this end. Suggested course offerings for students planning a social work career can be obtained from the Graduate School of Social Work catalog. The address and general information on the School are given on page 53.

Students who contemplate professional training in social work should discuss their upper-division programs with the Knoxville campus representatives of the School of Social Work.

American Studies. See Cultural Studies.

Latin American Studies. See Cultural Studies.

1510 General Sociology (4) Social origins, structures, forces, processes, and products.

1520 Sociology of Social Problems (4)

3010 Collective Behavior (4) Processual analysis of such collective phenomena as crowd behavior, social epidemics, fads, fashions, popular crazes, and mass movements; nature of the pub-

3810 Sociological Theory (4) Survey and analysis of development of sociological theory from time of Comte to present.

3910 Introduction to Social Research (4) Scientific methods; formulating testing hypotheses; techniques for collecting data; measuring social variables; interpreting research findings, lectures and laboratory.

3920 Elementary Statistical Methods (4) Statistics used in social research; elementary descriptive techniques; measures of central tendency, dispersion, elementary statistical inference, tests of significance for parametric and non-parametric data.

4000 Special Topics (4) Student-generated course offered at convenience of department upon student initiative. Scope of subject matter determined by students and instructor with consent of department. Elective credit only. Prerequisite determined by department.

4030 Society and Law (4) General treatment of social origins and consequences of law and legal process. Particular emphasis is placed on problems of law and social change, and on structure and functioning of legal sanctions. Some attention is paid to law and law-like phenomena in formal organizations and primitive societies.

4050 Sociology of Sport (4) Social organization and meaning of sport. Topics to be considered are the difference between sport and play and games, social and sport, sport as an occupation, place of sport in mass culture, exercise, subcultures, and reciprocal influences of sport and cultural milieu.

4102 Off-Campus Study (1-16) See page 187.

4103 Independent Study (1-16) See page 187.

4110 Population Problems (4) Demographic factors and social structure; trends in fertility, mortality, population growth, migration, distribution, and composition; population policy.

4120 Topics in Social Psychology (4) (Same as Psychology 4120.)

4130 Sociology of Punishment and Corrections (4) Traces development of correctional movement, develops a critical sociological perspective on contemporary correctional programs, and provides overview of evaluative research in corrections.

4310 Criminology (4)

4330 Urban Ecology (4) Examination of public, private, collective, and individual space. Classical school of ecology, its neoclassical revisions, social area analysis, and cognitive symbolic ecology emphasized.

4410 Educational Sociology (3) (Same as Education C 14410.)

4530 Community Organization (4) Structure; functions; linkages; development. Important community studies are reviewed and discussed. Emphasis on sociological analysis, not on implementation of change.

4540 Social and Religious Change (4) Critical review of historical and contemporary theories and methods employed in study of social change. Attention given to both macro and micro group change. (Same as Religious Studies 4540.)

4560 Formal Organization (4) Analysis of bureaucracy, process, division of labor, delegation of authority, channeled communication under system of rationality.

4820 American Minority Groups (4) Minority groups and social structure in American society; analysis of intergroup relations with attention given to both past and present intergroup relationships of selected groups to broader society.

4930 Social Movements (4) Development, organization, and function of social movements; attention is given to ideology, leadership and organization, social change, political, religious and other types of social movements.
4940 Sociology of Religion (4) Interrelationship of society, culture, and religion. (Same as Religious Studies 4940.)

4960 Tradition, Change and Modernity in Asia (4) (Same as Religious Studies 4960.)

4888 Honors: Sociology (4) Intensive study and research under faculty direction, including writing of senior thesis. Course credit may be split into two quarters. Candidacy is open only to majors who have shown a marked capability for independent study and have grade point averages of at least 3.0 in the College of Liberal Arts and 3.2 in the department. Prereq: Senior standing.

GRADUATE
The general requirements for the master’s and doctoral degree are given in the Graduate Catalog.

5000 Thesis

5040 Methodological Issues in Social Research (3)
5050 Seminar in Political Sociology (3)
5060-70 Special Social Investigation (3, 3)
5200 Seminar in Collective Behavior and Social Movements (3)
5210, 5420-30 Social Theory (3, 3, 3)
5220 Social Control (3)
5230 Seminar in Sociology of Medicine (3)
5240 Theory and Research in Human Migration (3)
5250 Selected Topics in Migration Research (3)
5310 Seminar in Methods of Sociological Research (3)
5320-30 Social Statistics (3, 3)
5520 Crime, Law, and Social Control (3)
5530 Seminar in Community (3)
5550 Seminar on Community Power (3)
5560-70 Field Research in Deviance (3, 3)
5580 Sociology of Mental Disorders (3)
5590 Social Differentiation and Stratification (3)
5610-20-30 Seminar in Occupations (3, 3, 3)
5640 Social Structure and Personality (3)
5670 Social Organization (3)
5720 Small Group Theory and Research (3)
5730 Seminar in Research Problems in Intergroup Relations (3)
5810 Seminar in Race and Culture (3)
5910 Urban and Regional Sociology (3)
5920 Seminar in Social Attitudes (3)
5940 Delinquency and the Social Structure (3)
5950 Seminar in Population Theory (3)
5960 Demographic Techniques (3)
5970 Sociology of Development and Modernization (3)
6000 Doctoral Research and Dissertation
6040 Experimental Research (3)
6050 Seminar on Methods of Social Research (3)
6070 Problems in Field Research (3)
6080 Research Problems in the Study of Social Groups (3)
6090-6100 Survey Design and Analysis (3, 3)
6130 Seminar in Mass Behavior and Related Topics (3)

6140 Advanced Reading in Sociological Theory (4)
6150 Advanced Reading in Sociological Methods (4)
6160 Advanced Special Social Investigation (4)
6170 Cross-cultural Aspects of Human Fertility (3)
6180 Theory and Method in Human Ecology (3)
6190 Advanced Special Social Investigation (4)
6510 Advanced Issues in Criminological Theory (3)
6520 Sociology of Deviance (3)
6530 Sociology of Law (3)
6540 Readings in Criminology and Deviance (3)
6550 Advanced Studies in Community (3)
6610 Seminar in Formal Organization (3)
6710 Seminar in Class and Status (3)
6810 Advanced Studies in Social Psychology (3)
6840-50 Social Change (3, 3)
6940 Advanced Studies in Urban Sociology (3)

Spanish
See Romance Languages.

Speech and Theatre


Assistant Professors: R.S. Ambler, Ph.D. Ohio State; J.E. Buckley, Ph.D. Northwestern; M. Quater, M.F.A. Wisconsin; B.V. Daniels, Ph.D. Cornell; F.D. Julian, Ph.D. Tennessee.


UNDERGRADUATE
Major: The major, speech and theatre, offers three areas of concentration as follows:

Concentration in Speech: Eight hours from Speech 1211-21, Speech and Theatre 1441 are prerequisite to a concentration which consists of two courses from Speech 2021, 2311 (or 3551 by permission), 2331, 2351; 30 additional hours in speech courses numbered 2000 and above, 12 hours of which may be cognate areas approved by the department and 24 of which must be in courses numbered 3000 and above.

Concentration in Theatre: Theatre 1320-30-40 is prerequisite to a concentration which consists of Theatre 2111, 2211-21, 2231, 3252-53-54, 19 additional hours of theatre courses numbered 2000 or above, 12 hours of which may be cognate areas approved by the department. At least one-half of the hours in the concentration must be earned at the 3000 level or above. Coreq: 9 hours from courses listed in the Dramatic Arts option of the Language, Literature, Arts Triad.

Concentration in General Speech: Designed for students who anticipate teaching speech in broad-based high school programs or who desire a wide exposure to the whole discipline of speech. Prerequisite is a minimum of two courses selected from Audiological and Speech Pathology 3040, Broadcasting 2750, Communications 1110, Speech 1211, 1221, Speech and Theatre 1441, Theatre 1310. The concentration consists of Speech 2311 (or 3551 by placement); one course selected from Speech 2021, 2331, 2351; 36 additional hours in courses numbered 2000 and above, no more than 20 of which can be in any one department or division (audiology and speech pathology, broadcasting, speech, speech and theatre, or theatre). At least 24 hours must be earned in courses numbered 3000 and above.

Minors: Two minors are offered: speech and theatre. Speech 1211-21 is prerequisite to a minor in speech which consists of 24 hours in speech courses numbered 3000 and above. Theatre 1320-30-40 is prerequisite to a minor in theatre which consists of 24 hours in theatre courses numbered 3000 and above, 8 hours of which must be in history and criticism.

Certification for Teaching Speech or Speech and English. Consult Certification Clerk, Room 212, Claxton Education Building.

GRADUATE
General requirements for the master's degree are given in the Graduate Catalog.

Speech (943)

1211 Introduction to Rhetoric and Public Address (4) Major theories of communication from Plato to present; methods for describing and evaluating public address.

1221 Introduction to Speech Communication (4) Fundamental theories and practices with particular reference to interpersonal communication, persuasion, semantics, psycholinguistics; legal and ethical dimensions of communication.

2021 Voice and Diction (3) Voice production; attention to individual speech problems.

2311 Public Speaking (4) Basic principles of speech preparation and delivery.

2331 Argumentation and Debate (4) Recommended: 2311.

2341 Parliamentary Procedure (3) Various techniques and procedures for collective decision making in assemblies.

2351 Interpersonal Communication (4) Communication theory in its application to informal, face-to-face situations.

2381 Business and Professional Speaking (4) Basic principles of oral communication within organizations. Listening skills, interviewing techniques, formal presentations (including technical papers and reports), conference planning, selecting and employing visual aids, informal communication systems, communicating corporate image, and other aspects of business and professional communicating.

2410-20-30 Intercollegiate Forensics (1, 1, 1) Supervised work in tournament debate and individual events. Prereq: Consent of instructor.

3011 Persuasion (4) Persuasive theory: psychological, sociological, and cultural dimensions.
3012 Persuasion: Projects (2) Material presented in Speech 3011 is applied to on and off-campus projects. Emphasis on analysis of the persuasive situation, application of the relevant communication principles, and understanding and evaluating the results. May be repeated for credit.

3021 Group Communication (4) Communication theory and its application to small groups, especially discussion groups; communication barriers, non-verbal communication, business communication.

3031 Non-verbal Communication (4) Exploration of non-verbal communication from human communication perspective; origins and research, usage and coding of non-verbal behavior, research strategies and theoretical approaches.

3410-20-30 Intercollegiate Forensics (1, 1, 1) Continuation of 2410-20-30. Prereq: Consent of instructor.

3541 Rhetorical Theory and Criticism (4) Survey of Western rhetorical theory; contemporary approaches to criticism of public address. Recommended: 1211.

3551 Persuasive Speaking (4) Speech forms; principles and practice of speech composition.

4222 Advanced Argumentation and Debate (4) Prereq: 2351 or consent of instructor.

4461 Quantitative Research Methods in Speech Communication (4) Designing experiments; planning field studies; using statistical analysis.

4551 Southern Oratory (4) Historical and critical study of public address in the South.

4560 Rhetoric of the Women's Rights Movement (4) Historical and critical study of public address in campaign for women's rights from the 1830s to present.

4571 British Oratory (4) Historical and critical study of British public address.

4582 Public Discussion of Race (4) History and criticism of racial advocacy in America.

4591 Persuasive Uses of Imaginative Literature (4) Topics in social and political uses of novels, plays, and poems.

4811 Advanced Phonetics (4) Phonetic aspects of contemporary dialects of the English language. Prereq: Consent of instructor.

4911-21 History of American Public Address (4, 4) 4911—Colonial period to 1865. 4921—1865 to present.

4999 Colloquium in Speech Communication (1) May be repeated for credit.

GRADUATE

5140 Communications Theory (3)

5210 Topics in Group and Interpersonal Communications (3)

5220 Quantitative Projects in Speech Communications (3)

5430 Studies in Tennessee Oratory (3)

5440 Organizational Communication (3)

5550-60-70 Studies in Persuasion (3, 3, 3)

5750-60-70 Studies in Rhetoric (3, 3, 3)

5911 Directing the Forensic Program (4)

4241-42 Advanced Scene Design (4, 4) 4241—Descriptive drawing as an approach to three-dimensional design; theatrical graphic standards and preparation of design drawings. 4242—Perception of surface color; construction of scenery through color with reference to rendering, scenic painting, and preparation of painter's elevations. Must be taken in sequence. Prereq: 2211-21, 3221-22 and consent of instructor.

4341-42 Advanced Lighting Design (4, 4) Relationship of light to setting in creating stage environment. Must be taken in sequence. Prereq: 3221-22 and consent of instructor.

4441-42 Advanced Play Directing (4, 4) Problems of play interpretation; directing period plays; preparation of a play for public performance. Must be taken in sequence. Prereq: 3451-52 and consent of instructor.

4541-42 Advanced Theatre Costume Design (4, 4) Advanced problems in costume design and construction; pattern drafting; draping. Prereq: 3511-12.

4751-52 Dramatic Theory and Criticism (3, 3) 4751—Theatre aesthetics. 4752—Dramatic theory.

4951-52 Playwriting (4, 4) Prereq: Consent of instructor.

GRADUATE

5011-12-13 Projects in Lieu of Thesis (3, 3, 3)

5250 Seminar in Playwriting (3)

5310 Studies in European Theatre History (3)

5320 Studies in American Theatre History (3)

5620 Projects in Lighting Design (3)

5630 Projects in Play Directing (3)

5640 Projects in Scene Design (3)

5650 Projects in Costume Design (3)

5660 Projects in Technical Theatre (3)

5760-71-72-73-74-75 Master Class in Acting (5, 5, 5, 5, 5)

5680-81-82 Design and Technical Theatre Seminar (6, 6, 6)

5890 Studies in Theatrical Production (3)

5912 Play Production in Secondary Schools (4)

5950-60-70 Studies in Dramatic Theory and Criticism (3, 3, 3)

Speech and Theatre (945)

1441 Introduction to Cinema (4) Development of motion pictures as a medium; film aesthetics; analysis and criticism of selected films.

1031 Oral Interpretation (3) Art of reading aloud; development of interpretive techniques and their application to selected passages of prose, poetry and drama.

3651 Oral Interpretation of Prose Literature (4) Prereq: 2031 or consent of instructor.

3661 Oral Interpretation of Poetry (4) Prereq: 2031 or consent of instructor.

3671 Oral Interpretation of Drama (4) Prereq: 2031 or consent of instructor.

4101 Foreign Study (1-16) See page 187.

4102 Off-Campus Study (1-16) May be repeated for major credit to maximum of 12 hrs. See page 187.

4103 Independent Study (1-16) May be repeated for major credit to maximum of 8 hrs. See page 187.

4170-80-90 Film History and Theory (3, 3, 3) Analysis of cinematic forms and styles. 4170: Narration. 4180: Exposition and persuasion. 4190: Experimental forms; films and other media.
Women's Studies

See Cultural Studies.

Zoology (995)

Professors: J.H. Abel (Head), Ph.D. Brown; R.M. Bagby, Ph.D. Illinois; D.L. Bunting, Ph.D. Oklahoma State; J.G. Carlson (Emeritus), Ph.D. Pennsylvania; A.C. Cole (Emeritus), Ph.D. Ohio State; J.C. Daniel, Jr., Ph.D. Colorado; D.A. Einhorn, Ph.D. Minnesota; R.C. Fraser, Ph.D. Minnesota; R.F. Grell, Ph.D. Tennessee; B. Hochman, Ph.D. California (Berkeley); J.C. Howlett, Ph.D. Cornell; W.K. Jeon, Ph.D. London (England); A.W. Jones (Emeritus), Ph.D. Virginia; J.K. Kennedy, Ph.D. Iowa; J.N. Lister, Ph.D. Idaho State; L.E. Rock (Vice Chancellor for Graduate Studies), Ph.D. Chicago; C.A. Shivers, Ph.D. Michigan State; J.T. Tanner, Ph.D. Cornell; S.R. Tipton (Emeritus), Ph.D. Duke; G.L. Whitson, Ph.D. Iowa.

Associate Professors: H.M. Ambrose III, Ph.D. Cornell; K.D. Burnham, Ph.D. Iowa; A.C. Echternacht, Ph.D. Kansas; A.A. El-Banna, Ph.D. Washington State; D.J. Fox, Ph.D. Johns Hopkins; E.T. Howley, Ph.D. Wisconsin; A.M. Juenroe, Ph.D. Minnesota; J.A. MacCabe, Ph.D. California (Davis); M.L. Pan, Ph.D. Pennsylvania; S.E. Flechert, Ph.D. Wisconsin; G.L. Vaughn, Ph.D. Duke; M.C. Whiteside, Ph.D. Indiana.

Assistant Professors: E.C. Frederick, Ph.D. Northern Arizona; K.R. Foreman, Ph.D. Idaho; N.D. Greenberg, Ph.D. Rutgers; M.A. Handel, Ph.D. Kansas State.

*Visiting.*

UNDERGRADUATE
Prerequisites to upper-division courses: Biology 1210-20-30 is a prerequisite for all upper-division courses, with the exception of 1200. Additional prerequisites are included with course descriptions. Courses numbered in the 4000s are no more advanced than those in the 3000s except as may be indicated by prerequisites.

Major: Consists of Biology 3110, 3120, 3130; 18 hours of upper-division zoology courses (except 3010-20-30), and 3 quarters of chemistry or biochemistry at the 2000 level or above. Of the 18 hours of upper-division zoology courses a minimum of 6 hours must be at the 4000 level, and at least one laboratory or field course.

Prerequisites to this major are: Biology 1210-20-30 or Zoology 1118-28 (Zoology 2920-30 may be substituted for Zoology 1118 or Biology 1220), and Chemistry 1110-20-30. Corequisites are Mathematics 1841-51, or 1840-50 or 1550-60 (Mathematics 1841-51 is the recommended choice); and a year sequence in physics (except 1410-20-30).

Note: Students majoring in zoology are advised to exercise care in fulfilling the Science and Mathematics Triad requirements. Mathematics 1840-50 or 1540-50 and Chemistry 1110-20-30 or equivalent (20 or 21 hours altogether) must be completed by all zoology majors.

Minor: Consists of 24 hours of zoology, or zoology and biology, courses. (Zoology courses are numbered at the upper-division level; but 2000-level biology courses may be used, e.g. Biology 2110, 2120, 2130.) Prerequisites to this minor are Biology 1210-20-30 or Zoology 1110-20-30 or 1118-28 and Chemistry 1110-20-30.

Note: Certain zoology courses require organic chemistry or other prerequisites—consult the catalog description for each course. Many courses in this department are offered only in specified quarters. Students should plan in advance the proper sequence. Information on the quarter a course is to be offered is available in the departmental office.

1118-28 Honors: General Zoology (6, 6) Course designed for superior students in any major field who are interested in obtaining a solid foundation in zoology. This two-quarter sequence is equivalent to the two-quarter Biology 2920-30 sequence and students may register for the core biology sequence (Biology 3110-20-30) following its completion. Honors zoology is open to students of any curriculum with a minimum ACT composite score of 28, or with a minimum grade point average of 3.2 in college. Students must be at least a B in whichever quarter is completed to be eligible for the second quarter. Students who do not satisfy this requirement must complete the sequence with appropriate quarters of Biology 1210-20-30. 1118—Chemical basis of life and organismal biology; origin and diversity of organisms. 1128—Genetics and biology of populations and communities. Six hrs of combined lecture and lab. Students who receive credit for 1118-28 may not also receive credit for Biology 1210-20-30 or Botany 1110-20 or 1118-28.

2460-70-80 Human Anatomy and Physiology for Nurses (4, 4, 4) Fundamentals of human anatomy and physiology. 2 hrs and 1 lab.

2461-71-81 Human Anatomy and Physiology for Nurses (4, 4, 4) Same as 2460-70-80 except 2 hrs and 2 labs.

2510-20 Human Biology (5, 5) Human biology for non-majors. Not available for major credit in zoology and biology. 2510—Human physiology. 2520—Human genetics and embryonic development with emphasis on applied aspects of embryology and genetics. Does not satisfy a laboratory course requirement.

2920-30 Human Physiology (4, 4) Fundamentals of biology for principles of human anatomy and physiology. Must be taken in sequence. Prereq: One year of college chemistry. 2 hrs and 2 labs.

3040 Natural History of the Vertebrates (5) Behavior, life history, phylogeny, and classification. 3 hrs and 3 labs or 4 hrs.

3050 Comparative Vertebrate Embryology (5) Developmental morphology of selected vertebrates. 2 hrs and 3 labs.

3060 Comparative Vertebrate Anatomy (4) Anatomy of organ systems. Dogfish shark and caecilian used in laboratory. 2 hrs and 2 labs.


3090 Biology and Human Affairs (3) Same as Botany 3090.

3110 General Entomology (5) Introduction to insects: basic structure, development, behavior; classification of insect orders and representative families; interpretation and use of keys. Prereq: Biology 3130, or consent of instructor. 3 hrs and 2 labs.

3150 Invertebrate Zoology (5) Biology of invertebrates (except insects) with emphasis on ecology and behavior. Prereq: Biology 3130. 3 hrs and 2 labs.

3220 Physiology of Reproduction (3) Same as Animal Science 3220.

3320 Histology (4) Study of animal tissues. Prereq: Biology 3120. 2 hrs and 2 labs.

3410 Bioethics (3) Relationship between biological discoveries and human values. Open dis-
cussion of selected dilemmas arising from new knowledge about medicine, behavior, resources, and technology.

3520 Introduction to Microbiology II: Immunology (2) (Same as Microbiology 3520.)

3920 Hormones and Endocrine Function in the Human (4) Basic course in human endocrinology with emphasis on the practical diagnosis of hormone levels for analysis of glandular function and treatment of endocrine abnormalities. 3 lectures and 1 discussion. Prereq: A course in physiology.

4007-4010 11-12-13-14-15-16-17 Minicourse in Zoology (2, 2, 2, 2, 2, 2, 2) Selected, advanced topics in zoology, concentrated in time and subject matter. Consult departmental listing for actual topics offered. Prereq: As posted. May be repeated for credit.

4050 Developmental Biology (4) Experimental morphogenesis, fertilization, cellular interactions, hormonal effects and related topics with examples drawn primarily from invertebrates and vertebrates. Prereq: 3050. 2 hrs and 2 labs.

4110-20-30 Undergraduate Research Participation (2, 2, 2) Experience in active research projects under supervision of staff members. Prereq: Junior or senior standing and prior consent of instructor.

4140 Practicum in Zoology (1-3) Participation in practical application of zoology in community institutions, government organizations and industries. Approximately 5 hrs involvement per week. Prereq: Biology 3110, 3120, 3130 and senior standing.

4190 Mammalogy (4) Classification, evolution, distribution, reproduction, populations, and behavior. 2 hrs and 2 lab or field periods. (Not open to students with credit for 3190.)

4200 Ichthyology (5) Classification, collection and identification, distribution, life histories, and ecology of fishes. Prereq: Biology 2130, or consent of instructor, 2 hrs and 2 lab or field periods. (Not open to students with credit for 3200.)

4210 Cell Physiology (5) Development of modern concepts in cell physiology from point of view of information and control which examines kinetics and integration of cellular activities. Prereq: Cell biology or any physiology, and organic chemistry. Biochemistry recommended. 3 lectures and 1 lab.

4240 Animal Ecology (4) Environmental factors determining distribution and numbers of animals; intra-specific relations; problems and methods. Prereq: Biology 3130. 2 hrs and 2 labs.

4250 Comparative Animal Physiology I (3) Environmental adaptations of animals to their environment. Survey of physiological mechanisms and their relation to ability of animals to survive in diverse physical environments. Prereq: Biology 3120-30, 2 years of chemistry. 3 hrs.

4259 Comparative Animal Physiology Laboratory I (1) Coreq: 4250. 1 hr.

4260 Comparative Animal Physiology II (3) Sensory, effector and integrative physiology. Prereq: 3030.

4268 Comparative Animal Physiology Laboratory II (1) Prereq: 3080 and consent of instructor; coreq: 4260.

4270 Advanced Immunology (2) (Same as Microbiology 4270.)

4280 Comparative Endocrinology (5) Comparative analysis of the anatomy and morphology of endocrine glands in vertebrates and invertebrates. Their role and interaction in maintenance of the organism and species. Prereq: 3080 or 3920. 3 hrs and 1 (3-2) lab.

4290 Herpetology (4) Classification, distribution, life histories, collection and identification of amphibians and reptiles, primarily of local species. Prereq: 3080 or 2 hrs and 2 lab or field periods. (Not open to students with credit for 3210.)

4300 Ornithology (4) Morphology, physiology, behavior, reproduction, populations, evolution, field identification. 2 hrs and 2 lab or field periods. (Not open to students with credit for 3230.)

4310 Nuclear Cytology (4) Chromosome structure and behavior in mitosis and meiosis. 1 hr lecture and 3 labs. Prereq: Biology 3110.

4320 Microtechnique (4) 3320 recommended. 2 hrs and 2 labs.

4330 General Cytology (4) Study of cellular organelles at the light and electron microscope levels and the functioning of these organelles. Prereq: Biology 3120.

4369 General Genetic Laboratory (2) Mainly Drosophila experiments designed to illustrate basic principles of inheritance. Prereq: Biology 3110. 2 hrs.

4380 Organic Evolution (3) Modern concepts of animal evolution. Prereq: Biology 3110.


4410 General Parasitology (4) Morphology, taxonomy, and ecology of parasitic worms and protozoa, with emphasis on host-parasite relationships. 3 hrs lab. Prereq: Biology 3130 or consent of instructor.

4430 Medical Entomology (4) Distinctive morphological features, distribution, life histories, and control of arthropods that parasitize man or serve as vectors of human pathogens. Prereq: Agricultural Biology 3210 or Biology 3130. (Not open to students with credit for 3430.)

4450 Protozoology (4) Morphology, taxonomy, and physiology of protozoa in relation to fundamental biological concepts. Recommended: Biology 3120. 2 hrs and 2 labs.

4610-20 Comparative Animal Pathology (2, 2) Abnormal morphological changes and their causes. 4610—Cell and tissue changes. 4620—Organ, organ system, and organism changes. Recommended: 3080, 3230, 3060.

4619-29 Comparative Animal Pathology (2, 2) 4619—Cell and tissue changes. 4629—Organ, organ system, and organism changes. Coreq: 4610-20.

4660-70 Limnology (4, 4) 4660—Effects of origin, age, and location of lakes on their physical and chemical nature. 4670—Lake communities, productivity and pollution. Prereq: Chemistry 1110-20 and Biology 3130. Botany 1100-20-30 and Physics 1210-20-30 recommended. 2 hrs and 2 labs (4660); 3 hrs and 1 lab (4670). Must be taken in sequence, except with consent of instructor. Not open to students with credit in 3650 or 4650.

4700 Arachnology (4) Biology of spiders, mites, scorpions, and relatives. Prereq: 3110 or 3190. 2 hrs and 2 labs.

4720 Comparative Animal Behavior (4) Methods and principles. (Same as Psychology 4720.)

4729 Comparative Animal Behavior Laboratory (4) Laboratory and field studies. Coreq: 4720. (Same as Psychology 4729.)

4810-20-30 Insect Morphology and Taxonomy (4, 4, 4) 4810—Internal morphology of both generalized and specialized forms. 4820—Taxonomy of major orders. 4830—Taxonomy of minor orders and immature forms. Prereq for 4820-30: 3110, or consent of instructor. 2 hrs and 2 labs.

4940 Physiology of Exercise (4) Functions of body in muscular work; physiological aspects of fatigue, training, and physical fitness. Prereq: 2920-30 or 3080. 3 hrs and 1 lab. (Not open to students with credit for 3840.)

GRADUATE

5000 Thesis

5080 Graduate Research Participation (3)

5110-20-30 Special Problems (2, 2, 2)

5150 Zoological Bibliography (1)

5180 Fresh-Water Invertebrates (4)

5210 Plant Parasitic Nematodes (4)

5260 Physiology of Hormones (4)

5270 Advanced Neuro muscular Physiology (5)

5280 Insect Physiology (4)

5290 Quaternary Problems (4)

5310-20 Seminar in Teaching of College Zoology (2, 2)

5350 Biometry (3)

5410 Advanced Parasitology (4)

5430 Advanced Medical Entomology (3)

5510-20 Advanced Animal Physiology (5, 5)

5550 Advanced Ornithology (4)

5570 Animal Populations (3)

5610-20 Foundations of Radiation Biology (4, 4)

5630 Methods of Experimentation with Laboratory Mammals (3)

5660 Physiology of Development (3)

5670 Cellular Immunology (4)

5780 General Vertebrate Neuroanatomy (3)

5780 Radiation Physiology (4)

5790 Transport of Ions Across Epithelia (4)

5820 Methods of Taxonomy (4)

5840 Aquatic Insects (4)

5860 Geographic Distribution of Animals (4)

5870 Insect Taxonomy (4)

6000 Doctoral Research and Dissertation

6110 Seminar in Cellular Biology (2)

6140 Seminar in Immunobiology (2)

6210 Seminar in Physiology (2)

6310 Seminar in Cytology (2)

6350 Seminar in Developmental Biology (2)

6410 Seminar in Parasitology (2)

6510 Seminar in Genetics (2)

6610 Seminar in Ornithology (2)

6650 Seminar in Aquatic Biology (2)

6710 Seminar in Ecology (2)

6810 Seminar in Entomology (2)

6910 Seminar in Radiation Biology (2)
Sylvia E. Hart, Dean
Barbara M. Reid, Associate Dean
Dorothy B. Stephens, Assistant Dean

The College of Nursing at The University of Tennessee, Knoxville, was established in July, 1971, in response to a long-recognized and well-established need for nurses prepared at the collegiate level and as a part of a statewide comprehensive plan approved for The University of Tennessee system by its Board of Trustees and for the state by the Tennessee Higher Education Commission.

The undergraduate program offered by the college is fully accredited by the National League for Nursing. It combines the unique resources of the University with those of several cooperating health agencies in a manner which enables both faculty and students to become aware of and responsive to an evolving dynamic culture, rapid scientific and technological advances and changing concepts of health, of human beings and of society.

The baccalaureate nursing program has as its central focus and frame of reference human beings, society and health. It is based on the belief that nursing has equal concern for the prevention of illness, the promotion of health, and the care of the sick.

General education courses, Nursing courses and electives are organized in a manner designed to promote creative thinking and innovative approaches at both the theoretical and practical levels. General education courses are incorporated into the nursing curriculum at both lower- and upper-division levels. Certain aspects of general education, primarily in the natural and behavioral sciences, are prerequisite to any courses in the nursing major. Other supporting courses are taken concurrently with Nursing courses.

Since nursing is a humanistic science and an art, Nursing courses provide theoretical content which draws heavily from the theories and principles of related sciences and disciplines. This content is organized, integrated and synthesized in a manner which promotes a comprehensive understanding of the life process from conception through senescence. In nursing practice, this knowledge and understanding is combined with intellectual judgments, practical skills and human compassion. Opportunities to develop this kind of expertise in a variety of settings and situations are integral components of all Nursing courses.

A broad base of general education, a thorough study of human behavior, emphasis on health maintenance and promotion, and a strong family and community orientation are essential components of baccalaureate education in nursing. It is these characteristics which differentiate it from other types of basic nursing education.

Because of the expanding role of the professional nurse, the increasing complexity of health care delivery and the ever changing health needs of society, the goals of the program are to prepare graduates who are able to:

1. Assume beginning leadership positions in nursing in a variety of settings.
2. Work collaboratively with other health professionals.
3. Function as socially conscious and contributing citizens.
4. Pursue advanced education on either a formal or an informal basis.

GENERAL REQUIREMENTS:

In order to obtain a Bachelor of Science in Nursing Degree, 12 quarters of full-time study or their equivalent are required. Students may enroll in Nursing courses following successful completion of 90 quarter hour credits in prescribed general education courses. These courses may be taken at The University of Tennessee or at any accredited junior or senior college or community college. One hundred eighty-nine quarter hour credits must be successfully completed in order to be awarded the Bachelor of Science in Nursing Degree.

NOTE: Students are advised to consult the University’s degree requirements as stated in the front section of the catalog as well as the requirements for the College of Nursing.

GRADING POLICY:

The Satisfactory-No Credit option is not permitted for any Nursing course.

The minimum acceptable grade for all courses in the nursing curriculum, other than electives, is a C; a course in which a grade of D or F is achieved may be repeated once. If a grade of D or F is achieved on the second attempt, the student will be required to withdraw from the program.

Any student who achieves a grade of D or F for more than two clinical Nursing courses will be required to withdraw from the program even if previous courses in which the grades of D or F were achieved have been repeated and a grade of C or better has removed the D or F. Clinical courses are: 3010, 3150, 3210, 3330, 4220, 4250, 4420, 4560, 4760.

If a student receives an incomplete (I) in a required Nursing course the incomplete must be removed before the student may enroll in any other required Nursing courses.

If a student’s clinical laboratory performance for any Nursing course is deemed unsatisfactory, the grade for that course will be an F regardless of any grades related to the theoretical component of the course. If the unsatisfactory clinical performance is characterized by dangerous, inappropriate or irresponsible behavior, behavior which actually or potentially places the patient’s or family’s welfare in jeopardy, the student will be required to withdraw from the program.

ADMISSION AND PROGRESSION PROCEDURES

(1) Nursing students must achieve a course grade of C or better in all required lower-division courses, exclusive of electives.
Microbiology 2610; Nutrition 1230 for Nutrition 3020.

Registered nurses must successfully complete Nutrition 4440, 4660, 4660, 4670, and 4860. They may challenge up to a maximum of 40 hours of other required clinical Nursing courses and they will receive credit for Nursing 3110 (Pharmacology) if they take and pass the NLE Pharmacology Achievement Test and achieve a score at or above the 50th percentile.

**COURSE LOAD**

The maximum credit hours per quarter allowed for any student without special permission is 18.

**BACHELOR OF SCIENCE IN NURSING CURRICULUM**

The following curriculum leads to the Bachelor of Science in Nursing degree. A minimum of 189 quarter hours of credit is required.

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>English 1010-20, 1031, 1032, or 1033.</td>
<td>3 3 3</td>
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<tr>
<td>Chemistry 1510-20-30.</td>
<td>4 4 4</td>
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<td>Math 1540.</td>
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<tr>
<td>Psychology 2010-19.</td>
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<tr>
<td>Child and Family Studies 2110.</td>
<td>3 3 3</td>
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<td>Nutrition 3020.</td>
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<td>Anthropology 2010.</td>
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<tr>
<td>Electives.</td>
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<tr>
<td>Zoology 2920-30.</td>
<td>4 4 4</td>
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<tr>
<td>Microbiology 2010-19.</td>
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<tr>
<td>Electives.</td>
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<tr>
<td>Junior.</td>
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<td>Nursing 3101, 3110, 3140.</td>
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<td>Nursing 3210-20.</td>
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<tr>
<td>Psychology 3520, 3530.</td>
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<td>Philosophy 3610.</td>
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<td>Senior.</td>
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<tr>
<td>Nursing 4110.</td>
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<tr>
<td>Nursing 4230, 4560.</td>
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<tr>
<td>Nursing 4440, 4660, 4670, 4860.</td>
<td>16 16 16</td>
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<tr>
<td>Electives.</td>
<td>6 6 6</td>
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</tbody>
</table>

**TOTAL: 189 hours**

At least 14 of the elective hours must be in humanities courses.

**Nursing (720)**

Professor: S.E. Hart (Dean), Ph.D. New York.

Associate Professors: D.H. Goodfellow, M.S.N. SUNY (Buffalo); M.E. Groer, Ph.D. Illinois; K.J. Kent, Ph.D. Illinois; J.M. Malan, Ph.D. Purdue; J.N. Mozingo, M.S.N. Emory; B.M. Reid, M.S.N. Columbia.

Assistant Professors: M.E. Banks, M.S.N. Wisconsin; M.T. Boynton, M.S.N. Emory; S.L. Bruning, M.S.N. Columbia; K.P. Conlon, M.S.N. SUNY (Buffalo); C.H. Davidson, M.S.N. Florida; M.W. Davis, M.S.N. Emory; R.B. Dossert, M.S.N. Tennessee; G.A. Evans, B.S.N. East Tennessee State; M.M. Feneke, M.N. Florida; R.N. Heit, M.S.N. Medical College of Georgia; M.L. Jolly, M.S.N. Columbia; C.F. Knapper, M.S.N. Vanderbilt; M.I. Kollar, M.A. Vanderbilt; V.M. Kraeler, M.S. Colorado; P.R. MacMorran, M.S.N. Vanderbilt; D.R. Odle, M.S.N. Emory; H.E. Overton, M.P.H. Tennessee; M.P.H. Tennessee; W.M. Sampselle, M.S.N. Ohio State; D.H. Shoffner, M.S. Tennessee; L.P. Smith, M.S.N. Medical College of Georgia.

**Instructors:** S.M. Bowen, M.S. Tennessee; P.G. Droppersman, M.S.N. Tennessee; N.E. Greven, M.S. Tennessee; L.L. Harrison, M.S.N. Delaware; N.B. Helms, B.S.N. Meridian; V.H. Hylton, M.S.N. Tennessee; D.R. Maupin, M.S.N. Vanderbilt; D.W. Patschke, B.S.N. UT Center for Health Sciences; J.H. Turner, M.N. Florida.

Lecturer: D.B. Stephens, M.S. Tennessee.

**2710 Family Health Promotion (4)** (Same as Nutrition 2710.)

**3010 Nursing Process (8)** Theory and related laboratory experiences necessary for beginning development of basic professional nursing role; history of development of traditional and expanding professional nursing role; philosophy of health and nursing; the health-illness continuum; determinants and indices of health and illness. 5 lectures, 3 labs. Prereq: All required lower-division courses with grade of C or better; coreq: 3110, 3410. For nursing majors only.

**3110 Pharmacology (4)** Biochemical and pharmacological effects of drugs and medications on the human body. Positive and negative pharmacological reactions and interaction effects between and among drugs. Prereq: Chemistry 1610-20, Zoology 2920-30.

**3210 Acute Care Nursing I (8)** Content and clinical laboratory experiences in the care of patients whose health problems require hospitalization. Physiological and behavioral deviations which underlie or are associated with more common, relatively uncomplicated acute illnesses of children and adults are stressed. Clinical laboratory experiences are planned to provide responsible students to apply their knowledge and skill to the care of patients in acute care settings as well as to the provision of continuity of care for those patients and their families. 5 hrs, 3 labs. Prereq: 3010, 3110, 3410. For nursing majors only.

**3220 Acute Care Nursing II (10)** Analysis of physiological and behavioral deviations which underlie or are associated with more complex and critical illnesses. Laboratory experiences provide opportunities to apply increasing knowledge and skill to care of acutely ill patient as well as to provision of continuity of care for those patients and their families. 5 hrs, 5 labs. Prereq: 3210. For nursing majors only.

**3410 Children and Health (4)** Theory and laboratory experiences related to systematic, comprehensive assessment of children and adolescents at various levels of health-illness. Emphasizes normal growth and development, interactions and relationships with parents, children and health workers and responses to illness and hospitalization. Coreq: 3010, 3110.

**3710 Individual and Family Health Problems (4)** (Same as Nutrition 3710.)

**3790 Sexual Adaptation in Illness and Health (3)** Anatomy, physiology and biochemistry of human sexuality; clinical sex problems of various age groups; sexual changes during pregnancy and childbirth; implications and treatment of sexual assault; sexuality and chronic illness. Prereq: Upper-division nursing student or consent of instructor.

**4110 Family Health Nursing (10)** Nursing needs of families in health and in crisis. Emphasis on provision of comprehensive care to families in the child-bearing and child-feeding phases of family development. Application of theories of human growth and development, family dynamics, and crisis interventions. Focus on development of skills necessary to provide quality nursing care to families experiencing normal pregnancy and childbirth, postpartum, and infant care needs, as well as the developmental, behavioral, and long term nature. Equal emphasis on prevention,
health promotion and rehabilitation. Laboratory experiences in a variety of psychiatric, extended care and outpatient clinics. 5 lectures, 5 labs. Prereq: All 3000-level Nursing courses or their equivalent. For nursing majors only.

4330 Nursing in the Specialties (2-4) Application of principles from behavioral, physical, social and nursing sciences to solution of nursing problems. Includes exploration of nursing intervention needed to maintain or restore homeostasis in clients experiencing selected physiological and/or behavioral deviations. Specific topics to be determined by faculty and students. May be repeated with consent of instructor. Maximum credit 12 hrs. Prereq: Consent of instructor.

4350 Oncology Nursing (3) In-depth exploration of the cancer problem, medical and nursing intervention. Relates cellular kinetics to theories of carcinogenesis and metastasis, and examines treatment modalities and nursing intervention employed in all phases of the disease. Interdisciplinary approach analyzed. Prereq: Nursing 4230, R. N. status or consent of instructor.

4400 Long Term Nursing (6) Nursing needs of patients with long term congenital, developmental, or other chronic health problems. Focus on development of knowledge and skills needed to achieve total patient and family involvement in rehabilitative process. 3 hrs, 3 labs. Prereq: All 3000-level Nursing courses or their equivalent and Nursing 4220 and 4250. For nursing majors only.

4440 Scientific Inquiry in Nursing (3) Introduction to language of research, types of research design, methodological approaches, sampling, data analysis and significance of findings. Evaluation of existing and ongoing nursing research studies. Prereq: 10 hrs of 4000-level Nursing courses. For nursing majors only.

4560 Nursing in the Community (6) Content and laboratory experiences with focus on health patterns, needs and problems of the community. Particular emphasis on the health assessment of small and large groups, comparison of variations in health needs and patterns within and between communities, involvement in preventive and promotive community health programs at the national, state and local levels. 3 hrs, 3 labs. Prereq: All 3000-level Nursing courses. For nursing majors only.

4660 Professional Nursing Seminar (3) Critical examination of legislative, legal, ethical, social and educational issues and trends which have immediate or long-range implications for professional nursing practice. Prereq: 10 hrs of 4000-level Nursing courses. For nursing majors only.

4760 Management of Health Care (6) Theories of administration, supervision, organization, management and leadership as they apply to the delivery of health care services. Emphasis on role of the nurse in health care management and delivery. Laboratory experiences to develop skills necessary to function as an effective member of the health team. 2 hrs, 1 lab. Prereq: 10 hrs of 4000-level Nursing courses. For nursing majors only.

4770 Comprehensive Health Assessment (6) Principles and theories underlying health screening of children and adults, including health history, interviewing and physical examination. Practicum included. 2 hrs and 2 labs. (4 hrs each). Prereq: All 3000-level Nursing courses or their equivalent or consent of instructor.

4860 Independent Study in Nursing (3) In-depth study of some aspect of nursing in which student has developed special interest. Study is pursued independently utilizing guidelines developed by the student with appropriate faculty guidance, supervision and evaluation. May be repeated with consent of instructor. Maximum credit 9 hrs. Prereq: 10 hrs of 4000-level Nursing courses. For nursing majors only.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)
Independent Departments

Department of Air Force Aerospace Studies

Air Force ROTC Program

Professor of Air Force Aerospace Studies: Col. E. Hiteshew (Head), M.A., East Carolina.

Assistant Professors:

GENERAL INFORMATION
Any student may enroll voluntarily in Air Force ROTC at the same time as registration for other undergraduate courses. There is no active duty obligation resulting from enrollment in the first two years of AFROTC classes unless the student is in AFROTC scholarship.

AIR FORCE ROTC SCHOLARSHIP PROGRAM
Scholarships are available to qualified students who enroll in the four-year cadet program. These scholarships cover full tuition, all fees, and reimbursement for all required books. In addition, cadets are paid $100 per month during the entire period of the scholarship. Scholarships are awarded to cadets on a competitive basis for two through four years at all levels of the Air Force ROTC program, including college freshmen, sophomores, and juniors. High school seniors should contact their guidance counselors to apply for four-year scholarships not later than December 15 each year. Applicants for two- or three-year scholarships should contact the Professor of Air Force Aerospace Studies on campus early in the academic year.

PURPOSE OF THE AIR FORCE ROTC
The Air Force ROTC Program is designed to qualify for commissions those college men and women who desire to serve in the United States Air Force. The program provides education that will develop skills and attitudes vital to the professional Air Force officer. Upon graduation from the University and the Department of Air Force Aerospace Studies, students are commissioned as second lieutenants in the United States Air Force Reserve. Opportunities exist throughout the initial period of active duty for the graduate to receive a Regular Commission in the Air Force and to pursue commissioned service as a career.

UNIVERSITY CREDITS
The following credits are granted for Aerospace Studies work and are credited toward a degree in some colleges. See respective PAS for further information.

Aerospace Studies 1000 series
(Freshman)—6 quarter hours per year

Aerospace Studies 2000 series
(Sophomore)—6 quarter hours per year

Field Training Academics
(Sophomore)—6 quarter hours

Aerospace Studies 3000 series
(Junior)—9 quarter hours per year

Flight Instruction Ground School—3 quarter hours

Aerospace Studies 4000 series
(Senior)—9 quarter hours per year.

COURSES AVAILABLE
The first two years (freshman and sophomore) of the Air Force curriculum are known as the General Military Course. The last two years of the curriculum (junior and senior) are known as the Professional Officer Course.

Flight training is offered free of charge to qualified pilot candidates who are senior AFROTC cadets. The cadet receives 25 hours of flight instruction. University credit is granted for the Ground School portion of the Flight Instruction Program.

Field Training is offered at Air Force bases across the country. Normally, this is the cadet's first extended exposure to an Air Force environment. It is here that the cadet receives junior officer and leadership development training. Also at this time, the Air Force has an opportunity to personally evaluate each cadet as a potential member of its officer corps. Four-year ROTC members are required to complete a four-week session and two-year applicants attend a six-week session, adding two intensive weeks of academics comparable to the academics taught in Aerospace Studies 1000 and 2000 courses. Credit is granted for this two-week period, provided the student registers for credit, attends five one-hour pretraining sessions before attending Field Training, and attends two one-hour seminars conducted during the fall quarter following completion of Field Training.

ELIGIBILITY FOR THE PROFESSIONAL OFFICER COURSE (FOR PURPOSE OF EARNING A COMMISSION)
(Junior and Senior Years)
All cadets enrolled in the Professional Officer Course (junior and senior years) of the Air Force ROTC (for purpose of earning a commission) must:

a. Have either completed the General Military Course (freshman and sophomore years), or the off-campus, six-week Field Training, or have the required amount of prior military service.

b. Have two academic years of college remaining (either graduate or undergraduate).

c. Execute a written agreement with the government to complete the program, contingent upon remaining qualified and in school, and attend the off-campus, four-week Field Training between the sophomore and junior years and accept an Air Force Reserve Commission, if tendered.

d. Be selected by the Professor of Air Force Aerospace Studies and the President of the University or the duly authorized representative.

EXEMPTIONS FOR PREVIOUS ROTC, PREVIOUS ACTIVE MILITARY SERVICE, OR CERTAIN CIVIL AIR PATROL AWARDS
A student may request exemption from portions of the General Military Course on the following bases: (1) previous
honorable active military service in any branch of the Armed Services; (2) at least two years of high school ROTC; or (3) holding certain awards in the Civil Air Patrol. Exemption will be on an individual basis, and no University credit is given for those hours or portions of the General Military Course exempted.

PAY AND ENTITLEMENTS
All cadets enrolled in AFROTC are furnished texts and uniforms by the government through the Air Force Material Control Clerk, University of Tennessee. Enrollees are required to deposit $35 as security to the University against loss or damage of uniforms or equipment for which the University is accountable to the government. At the completion of AFROTC, or when the student withdraws from the program, with the exception of a nominal fee covering the cost of shoes the deposit is returned to the student provided proper clearance for uniforms and equipment is obtained. Professional Officer Course cadets receive a subsistence allowance of $100 per month, not to exceed $50. In addition they are paid mileage to and from Field Training, plus pay commensurate with active duty rates. A four-week Field Training is normally required between the sophomore and junior years for those students enrolled in the four-year program. A six-week camp is required for two-year applicants.

ACTIVE DUTY COMMITMENTS
Commissioned grades going into non-commissioned grades will be required to serve four years of active duty. Those graduates going into pilot assignments will be required to serve six years active duty after completion of pilot training. Those graduates going into navigator assignments will be required to serve five years active duty after completion of navigator training.

CONDUCT, ORGANIZATION, AND ADMINISTRATION
Air Force Regulations provide for the following: "For the effective conduct of instruction at civilian colleges and universities, subject to coordination with general institutional policies and arrangements and the approval of the head of the institution, the Professor of Air Force Aerospace Studies will be empowered to draft rules and orders, relating to the organization, control, and training of the members of the AFROTC and the appointment, promotion, and reduction of Cadet Officers and Cadet Non-Commissioned Officers." The Department of Air Force Aerospace Studies sponsors the following organizations:

(2) Angel Flight National auxiliary of the Arnold Air Society. Composed of selected cadets who are interested in enhancing the spirit, morale, and appearance of the Air Force ROTC Cadet Corps.
(3) Sabre Team. Provides interested cadets an opportunity to serve as honor guard for all official Cadet Corps functions.
(4) Air Commando Flight. Provides opportunity for additional military training for those cadets volunteering to participate.

Curriculum
Air Force Aerospace Studies (094)

1210-20-30 Air Force Aerospace Studies (2, 2, 2) Surveys the missions, functions, and organization of the Air Force and the Army. Emphasis on the Air Force Commands, the environment in which the Air Force operates and how the Air Force works with the Army and Navy, providing foundation upon which study of the Armed Forces and the Air Force can build. 1 hr and 1 hr lab (Leadership Laboratory).

2210-20-30 Air Force Aerospace Studies (2, 2, 2) Introduction to study of air power. Course is developed from a historical perspective starting before the Wright Brothers and continuing into the 1970s. 1 hr and 1 hr lab (Leadership Laboratory).

2240 Field Training (Academic Program) (1-6) Role of United States military forces in contemporary world, with particular attention to United States Air Force, its organization and mission, various component forces of U.S. military power, organization of America's defense structure, policies of major powers, and elements and processes in making of defense policy. Conducted at Field Training bases in the country. Approximately 52 class hrs.

3210-20-30 Air Force Aerospace Studies (3, 3, 3) Air Force leadership at junior officer level, including theoretical, professional, and legal aspects, with emphasis on leadership skills. Military management functions, principles, and techniques are covered. 3 hrs and lab (Leadership Laboratory).

3340 Flight Instruction Ground School (Private Pilot) (3) Part of Air Force ROTC Flight Instruction Program and is designed to prepare student to operate safely as an aviator. Objectives are to enable student to pass FAA private pilot's written examination. Thirty quarter hrs of classroom instruction. Subject areas covered are: Preflight Facts—Acquaints students with factors affecting flight; Meteorology—Involves student in learning weather phenomena affecting flight, weather information, and services available to pilots; Flight Computer, Navigation and Radio Navigation—Covers the requirements to plan a cross-country, use of appropriate maps, charts, logs and regulations that must be known to operate safely and legally.

3500 Flight Instruction Ground School (Instrument) (3) Consists of audio-visual aids and discussion covering Federal Aviation Agency (FAA) Instrument Flight Rules, Exams-O-Grams, Advanced Meteorology, planning and use of instrument charts for flight and procedural instruction of instrument flying techniques and applications. Emphasizes safety in operation of small aircraft and provides necessary instruction for the FAA written examination instrument pilot's license. Prerequisite: 3240 or an FAA private license.

3555 Commercial Pilot (3) Audio and visual presentation supplemented with discussion of following topics: Advanced Flight Computer; Advanced Meteorology; Advanced VFR Navigation and Radio; Commercial Pilot Federal Aviation Regulations and Exams; Alcohol, Drugs, and Flight; Weather, Oxygen, Altitude, and the Body; Weight and Balance; and Oxygen Systems. Course provides necessary instruction to take Federal Aviation Agency (FAA) written examination for Commercial Pilot's License.

4210-20-30 Air Force Aerospace Studies (3, 3, 3) Role and function of professional officer in a democratic society; socialization process, public attitudes, and value orientations associated with professional military service; requisites for maintaining national defense; 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 communications skills. 3 hrs and 1 lab (Leadership Laboratory).

Department of Military Science
Army Reserve Officers' Training Corps

Professor of Military Science:
Colonel Daniel H. Bauer (Head), M.A. Illinois.
Assistant Professors of Military Science:

UNIVERSITY ROTC PROGRAM
The University of Tennessee offers a voluntary ROTC program leading to appointment as an officer in the United States Army.

PURPOSE AND OBJECTIVE
The purpose is to provide professional education which will prepare students for appointment as commissioned officers in the Regular Army or the United States Army Reserve.

Objectives of the program are to provide students with an understanding of the fundamental concepts and principles of military art and science; to develop in them a basic understanding of associated professional knowledge, and a 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.

ARMY ROTC SCHOLARSHIP PROGRAM
The Army ROTC scholarship program offers financial assistance to outstanding young men and women in the Army ROTC program who are interested in the Army as a career. Each scholarship provides for free tuition, textbooks, and laboratory fees in addition to a subsistence allowance of $100 per month for the period that the scholarship is in effect. Scholarships may be awarded for either one, two, three or four years. High school seniors should contact their guidance counselors early in November or December of their senior year to apply for the four-year scholarship. One-, two-, and three-year scholarship applicants should contact the Professor of Military Science for further information. Certain other privately financed scholarships and grants are available to ROTC cadets.

UNIVERSITY CREDIT
The University of Tennessee grants the following credit for military science:
Military Science I—3 quarter hours (MS 1110)
Military Science II—2 quarter hours (MS 2110-20)
Military Science III—12 quarter hours (MS 3110-20-30)
COURSES AVAILABLE

The curriculum of the Army ROTC program is designed to prepare the cadet for appointment as an officer. Selection for assignment to the various branches of the Army is based upon:

a. The personal interests of the cadet.
b. The needs of the Service.
c. Academic accomplishment.
d. Leadership potential.
e. 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.

Curriculum

Military Science (688)

1110 Fundamentals of Leadership and Management (3) Development of American military institutions, policies, experiences and traditions in peace and war from colonial times to present. Historical examination of effective and ineffective leadership and application of principles of war. Practical exercise in leadership development.


2120 Applied Leadership and Management (3) Contemporary world scene and impact on the military. Planning, preparation, and presentation of briefings and continued development of leadership skills through practical exercise. Discussion of ROTC Advanced Course. Prereq: 2110.

3110-20-30 Advanced Leadership and Management (4, 4, 4) Applied leadership to include operation of the military team, electronic communications, land navigation, small unit leadership and internal defense/development. Two field trips. Leadership Laboratory: Philosophy of organization and operation of military in tactical and administrative roles. Prereq: 2120.

4000 Army ROTC Summer Camp (6) Six-week encampment (forty-four hours of instruction are scheduled each week) to commissioning and normally scheduled upon completion of 3130. Camp is conducted at an Army installation with instruction presented by ROTC faculty from colleges and universities. Course of instruction is an extension of leadership and management curricula. Prereq: 3130.

4110 Theory and Dynamics of the Military Team (4) Organization and management of division military team, development and function of military staff, and coordination and planning of the military team. Leadership Laboratory: Staff and Tactical Planning, presentation of briefings, preparation, execution and supervision of plans. Prereq: 4000 or consent of instructor.

4120-30 Seminar in Leadership and Management (4, 4) Analysis of selected leadership and management problems involved in unit administration, military justice, Army Readiness Program, and officer-enslited relationships. Leadership Laboratory. Prereq: 4110.
Division of Continuing Education

Charles H. Weaver, Vice President for Continuing Education
Charles W. Hartsell, Assistant Vice President for Continuing Education
Raymond A. Shirley, Assistant Vice President for Continuing Education

The Division of Continuing Education is responsible for the operation of all statewide continuing education programs, both on campus and off campus. The Division is concerned with policies and programs required for effective offering of educational opportunities, including attainment of college-level degrees, to qualified students of all ages and walks of life who pursue knowledge outside the traditional on-campus setting. All continuing education programs of the University are coordinated through the Division.

Information concerning continuing education programs of the various campuses is set forth in the respective catalogs. Information on continuing education programs of The University of Tennessee, Knoxville, is given on page 102 of this catalog.

Joint University Center (UT/MSU)
Coordinator:
J.A. Rhodes, Jr., Ph.D. Georgia State.

The Joint University Center is administered cooperatively by The University of Tennessee and Memphis State University, and the Division has coordinative and developmental responsibilities only.

Center for Extended Learning
Director:

Associate Directors:
B.W. Wallace, M.S. Tennessee; R.H. Considine, Ph.D. Tennessee.

Editor:
A. Gettlefinger, B.A. Tennessee.

CLEP Open Center: Administers College Level Examination Program tests each month.

College Credit for High School Seniors: Coordinated in cooperation with the State Board of Education.

Conferences: For specific clientele statewide.

Independent Reading: The student should contact the academic department for the desired reading course and then register for credit through the CEL.

Independent Study: Extends instructional services of the University from all campuses to the citizens of the state. Courses may be started at any time.

College Entrance Courses: To remove entrance deficiencies or to complete high school requirements.

Non-Credit Courses and Certificate Programs: In areas of general interest and in technical, business, and professional fields.

Statewide Media Programs: Courses for credit by cable and open-circuit television, radio, and newspapers.

Undergraduate Cooperative Education Program: For students desiring to work alternate quarters while going to school.

For information on enrollment, costs, books, and credit, write: Center for Extended Learning, 447 Comm. & Univ. Ext. Bldg., The University of Tennessee, Knoxville, Tennessee 37916. Telephone: (615) 974-5135.

Head Start State Training Office
Director:
L.C. Biggs, M.S. Wisconsin.

Assistant Director:

Handicap Coordinator:
R.B. Popp, M.S. Tennessee.

Training Officers:
L.J. Champion, Ph.D. Tennessee; K.J. Davis, B.S. Iowa State; M.D. Griffin, M.S. Tennessee; C.L. Hammont, M.S. Memphis State; L.L. Horn, B.S. Tennessee; C.J. Howard; W.H. Wiggins, M.S. Tennessee Tech; L.H. Wynn, B.S. Livingston College.

The State Training Office of Head Start is a program of services to the 20 area Head Start programs in Tennessee. The services include organizing training programs for personnel of the various local programs, development of special workshops, publication of a newsletter, and organizational work with parents of children in the Head Start program. This office provides training through the coordination of Head Start Supplementary Training and the State Training Office grants.

Library Services
Director:
D.J. Harkness, M.S. Columbia.

This is a statewide service, administered by the system Division, and has four major facets.

Package Library and Book Services provide material for use by clubwomen, teachers, librarians, and other individuals in preparing talks and papers and in doing special study and reference work. Books from the Extension Library and the University Library are loaned to individuals within the state and to students taking courses by correspondence. Study club outlines, bibliographies, suggestions for club yearbooks, reading lists, and information-reference services are provided.
Club Program Service includes a series of program manuals on historical, literary, and bibliographical subjects designed to help clubwomen, teachers, and librarians in their work and individuals in their reading and study in informal adult education.

Drama Loan Service makes it possible for directors of drama in schools, colleges, universities, Little Theatres, and church drama groups to borrow copies of one-act and three-act plays and material for special days for reading and examination. Information on sets, costumes, and the original Broadway productions, along with material on playwrights, actors, and actresses, is also available.

School Program Service includes aids to teachers, librarians, and directors of speech and drama through package libraries, drama loans, and production aids.

Publications
Publications are a direct means of extending to Tennesseans the information resulting from studies by University departments and various extension materials designed for general enrichment of civic, cultural, and economic understanding. The University of Tennessee Continuing Education Series is used as an outlet for these materials. A list of available titles, most of them free to Tennessee residents, may be had upon request.

Radio Services
Director:
R.A. Shirley, M.A. Tennessee.

Associate Director:
N.L. Dryer, B.M. Indiana.

Assistant Directors:
G.D. Francis, B.S. Syracuse;
S.D. Williamson, Jr., B.M. Tennessee.

Staff:
J.C. Adkins, M.S. Tennessee; M.J. Bell, B.A.
North Carolina; D. Burns; J.A. Chastain;
W.G. Hauser, B.A. New Mexico; P.J. Rebbmann,
B.S. Middle Tennessee State; J.E. Toher, B.A.
Tennessee; R.W. Stagg.

This department conducts an extensive statewide program of adult education and information by radio, offering hundreds of different cultural and educational experiences. Its activities may be grouped into three categories.

1) WUOT, the University’s 100,000-watt stereo FM station, operating 19 hours a day every day of the year, with a high quality and varied program of music, public affairs, discussion, drama, and documentaries from local, state, national, and international sources. The station is a member of the National Public Radio Network.

2) A network of over 150 Tennessee radio stations which provide without charge the time for over 22,000 quarter-hour programs on subjects of public interest, with production, duplication on audio tape, and distribution accomplished by the department. Its close contact with all broadcasting, and its staff and facilities, equip the department ideally for work with the other campuses in the production, duplication, and distribution of audio materials for educational use. It will upon request assist all of the campuses in communications development.

3) A technical service which includes highspeed duplication of reel-to-reel or cassette audio tapes for University departments, recording conferences and workshops, audio consulting, and educational radio consulting.

Teaching Materials Center
Director:
J.T. Benton, M.S. Tennessee.

This department provides educational films for the public schools, colleges, churches, civic clubs, and other interested organizations on a wide variety of subjects, ranging from agriculture to technical material on the space age, and also films for industrial use. Film councils throughout the state encourage the use of these materials for forum discussions and general adult education. An advisory service on effective film use is also provided by the department. Films, equipment, and other services are made available to the academic faculty for classroom instruction and experimentation and educational films are provided for the students both on and off campus for student teaching, previews, and special projects.

Television Services
Director:
F.A. Lester, M.A. Tennessee.

Assistant Directors:
D.L. Bower; W.R. Terry, B.A. Tennessee.

Producers:
S.H. Gordon, B.S. Tennessee; W.P. Wilson, B.S.
Tennessee.

Television services include the complex closed-circuit administration and production work which results in many lower-division resident classes being taught to some 8000 students by television on the campus; the production of 52 half-hour programs each year on WSJK-TV, the State Department of Education station in East Tennessee; and instruction for three resident courses in broadcasting for the College of Communications. The department jointly administers an off-campus secondary school accelerated entrance program by television tape and the Video Tape Electrowriter Remote Mode program of professional development studies.
The University Library

Donald R. Hunt, Director
Kenneth E. Marks, Associate Director/Public Service
Richard C. Pollard, Associate Director/Technical Services
George W. Shippman, Associate Director/Administrative Services

Professors:
Donald R. Hunt (Director), M.A.L.S. Michigan;
G.M. Abel (Emeritus), M.S. Chicago;
R.J. Basset, A.M.L.S. Michigan; D.H. Branch,
B.A.L.S. Emory; J.H. Dobson, M.S. Columbia;
E.E. Goehr (Emerita), B.S.L.S. Columbia;
L.B. Vandiver, M.A. Florida State.

Associate Professors:
P.S. Bayne, M.A.L.S. North Carolina;
M.P. Crawford, M.A.L.S. Kentucky; F.H. Felder,
M.A.L.S. Atlanta; H.S. Garrett, M.A. Peabody,
D.W. Jett, M.A.L.S. Florida State; A.W. LeClerc,
M.L.S. Emory; K.E. Marks, Ph.D. Iowa State;
A.E. Mitchell, M.A.L.S. Peabody; A.M. Nicholos,
M.S. Florida State; G.K. Phillips, M.L.N. Emory;
R.C. Pollard, M.A.L.S. Southern California;
M.J. Sharp, M.L.S. Emory; G.W. Shippman,
M.A.L.S. Michigan; B.C. Wolfe, Jr., J.D.
Kentucky.

Assistant Professors:
P.P. Barkalow, M.L.S. Rutgers; C.S. Carver, M.L.S.
Peabody; K.M. Crowther, M.L.N. Emory;
O.C. Elgin, M.L.S. Oregon; D.K. Freeman,
M.L.S. Indiana; J.W. Granade, M.S.L.S. North
Carolina; S.S. Leach, M.L.N. Emory;
A.H. Mitchell, M.S.L.S. Tennessee; L.L. Phillips,
M.L.S. Rutgers; R.R. Rodda, M.L.S. Western
Ontario; J.H. Worley, M.S.L.S. Tennessee.

Instructors:
D.C. Picquet, M.S.L.S. Tennessee; D.L. Ream,
M.A. Southern Florida; J.K. Shelby, M.L.S.
Tennessee; R.H. Smith, M.S. Illinois;
N.B. Watkins, M.L.S. Tennessee; H.L. Wells,
M.S.L.S. North Carolina; N.H. Wiest, M.S.
Drexel.

The UTK Library, as the premier library of the state, seeks to acquire and service all necessary recorded information, both print and non-print, that meets the needs of the University's teaching, research, and service programs.

The books, periodicals, non-print and any other materials contained in the six UTK Library units are available to all students, faculty and staff of The University of Tennessee, Knoxville.

Included among the holdings are 1,390,541 books, 1,159,463 microforms, 4,568 audiotapes, 1,371 slide carousels, 655 videotapes, 8,341 phonodiscs, 1.9 million manuscripts, and various ephemeral materials. More than 24,900 periodical and other serial titles are received annually.

The library in its six locations is open to all students and faculty, regardless of their fields of study. The James D. Hoskins Library at 1401 West Cumberland is the main library where administrative and technical services offices are located. The dictionary catalog, listing the library holdings for the entire campus, is in Main, as are the general and research collections, comprehensive reference, interlibrary services, documents, 4000/5000-level reserves, newspapers, non-print materials, and Special Collections, the last a repository of local and regional source materials.

The John C. Hodges Undergraduate Library, on Volunteer Boulevard at Andy Holt Ave., has a limited collection of 150,000 volumes selected to meet the needs of students in undergraduate courses. Reserve materials for 1000-3000 level courses are available in this library as is a large collection of audiotapes, slides and videocassettes.

Other libraries serving specialized areas are Agriculture-Veterinary Medicine in the Veterinary Medicine building, Law in the Taylor Law Building, Music in the Music Building, and Science/Engineering in Dabney-Buehler.

The libraries are administered by a director, three associate directors (for public, technical, and administrative services) and a number of department heads. Questions and comments are invited in person or through the suggestion boxes located in each library. Continuing evaluation and building of the collections is the responsibility of Collections Development Librarian. While most materials are selected by faculty, recommendations for purchase are invited from all students and staff.

Copies of Your Libraries, the library handbook for students and faculty, are available at all libraries.
Computing Center

Gordon R. Sherman, Director
Martha F. Bowen, Associate Director
Terry Feagin, Associate Director
Sara A. Phillips, Associate Director
Timothy P. MacKenzie, Assistant Director

Faculty Associates
Professors:
G.R. Sherman (Director), Ph.D. Purdue;
R.E. Cline, Ph.D. Purdue.

Associate Professors:
A.D. Bishop, Jr., Ph.D. Clemson; D.T. Feagin*,
Ph.D. Texas.

Assistant Professor:
D.W. Straight, Ph.D. Texas.

*On leave.

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

UTCC is principally located in the
Stokely Management Center and in Andy
Holt Tower. From the Stokely location,
UTCC supplies computing services to all
campuses in the UT system through job
entry facilities located on each campus. At
UTK, UTCC maintains five job entry
stations for batch work and eight sites for
interactive computer work.

UTCC's equipment consists of an IBM
370/148, an IBM 360/65 and a DCSYSTEM-
10 which are used for research, instruction
and administrative computing work. UTCC
also maintains an IBM 360/40 which is
used exclusively for administrative work.

The IBM 370/148 has two million bytes of
memory, and the IBM 360/65 has
2.75 million bytes of memory. The
DCSYSTEM-10 is a 1080 configuration with
256K words of memory.

UTCC supports remote job entry
stations (card reader/line printer) with the
IBM 370/148-IBM 360/65-DCSYSTEM-10
combination and a CalComp plotter. The
IBM 370/148 and 360/65 run under OS/360
MVT with HASP II. The DCSYSTEM-10 runs
under the TOPS-10 Monitor. The time
sharing system supported by the two
machines includes ATS/360, Coursewriter
III, APL, FORTRAN, BASIC, COBOL,
Assembler language, and other special
purpose application programs.

UTCC publishes a User's Guide which
describes the use of the IBM 370/148 and
360/65 and policies and procedures and
the DCSYSTEM-10 Programmer's Guide,
which is a general handbook for the use of
the DCSYSTEM-10. The two guides are
available at the UTK Book and Supply
Store. UTCC also publishes a monthly
Newsletter which announces systems,
equipment and procedural changes and
contains other items of interest to the user
community. Program writeups and special
user's guides are also published.

UTCC periodically offers intensive
training seminars of several days duration
in computer utilization on the IBM 370/148
and 360/65 and the DCSYSTEM-10. These
seminars are planned primarily for faculty,
staff and graduate students who use or
plan to use UTCC facilities. UTCC offers
non-credit short courses each quarter in
topics such as programming languages
and special purpose programs. These
courses are announced in the Newsletter
and in the UT Daily Beacon.

Computing services can be requested
via the Request for Services form available
from the business office in the Stokely
Management Center. All users of UTCC
facilities are assigned a consultant to
provide user assistance.

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Public Service

Vice President for Public Service:
C.E. Smith, Ph.D. George Peabody

Institute for Public Service
Executive Director:
R.S. Hutchison, M.B.A. Chicago.

Associate Director:
L.R. Rogers, B.S. Tennessee.

Director of Communication Services:
T.B. Ballard, B.S. Tennessee.

Manager of Request-for-Service System:
W.S. Evans, B.S. Tennessee.

Business Manager:
G.W. Baskette.

The Institute for Public Service was established in 1971 within the Office of the Vice President for Urban and Public Affairs. The purpose of the Institute is to coordinate and promote public service activities throughout the University system, excluding services provided through the Institute of Agriculture.

The basic goal of the University public service effort is to bring to the citizens of Tennessee—their business, their industry, and their governments—the problem-solving capabilities uniquely embodied within their statewide University system.

Public service at The University of Tennessee includes all services offered to those outside the University, including teaching in certain non-degree situations, technical assistance, and applied research which is conducted specifically at the request and for the benefit of non-University organizations in Tennessee.

The Institute provides: (1) a systems-wide focal point for urban and public services; (2) a means to coordinate the various system-level public service activities; and (3) an organizational base for communication and program development that relates to both outside service clientele of the University and the campuses of the University system.

The Institute is headquartered in Knoxville and maintains regional offices in Chattanooga, Cookeville, Jackson, Johnson City, and Nashville.

The Institute is comprised of the system-level public service operations listed below.

County Technical Assistance Service
Executive Director:
J.H. Westbrook, Jr., B.S. Tennessee.

Executive Assistant:
C.R. Phebus, M.S. Vanderbilt.

Assistant Director for Administration:
T.D. McAnulty, M.A. Austin Peay State.

Legal Specialists:
W.C. McIntyre, J.D. YMCA Law School; J.D. Mayo, J.D. Tennessee; R.E. Fults, J.D. Tennessee; K.A. Hogan, J.D. Tennessee.

Director of County Law Enforcement Services:
G.L. White.

Law Enforcement Consultants:
S.F. Glaser, B.S. Tennessee; W.G. Hall, B.S. Middle Tennessee State.

Financial Specialists:
R.L. Adkins, B.S. Bethel; R.A. Pierce, B.A. Alabama; R.M. Wormsley, B.S. Cumberland.

Engineering Specialists:
J.R. Hight, M.S. Tennessee; B.M. Levine, B.S. St. Peter's.

Communications and Publications Specialist:
M.C. Walker, B.S. Tennessee.

Special Projects Coordinator:
M.J. Frank, B.A. Tennessee.

County Field Advisers:

The County Technical Assistance Service was established by the Board of Trustees at the 1973 mid-year meeting and began operation September 1, 1973.

Establishment of the Service was authorized by the 88th General Assembly for the purpose of providing "studies and research in county government, publications, educational conferences and attendance thereof, and to furnish technical, consultative and field services to counties of the state in problems relating to fiscal administration, accounting, tax assessment and collection, law enforcement, improvements, and public works, and in any and all matters relating to county government. This program shall be carried on in cooperation with and with the advice of counties in the state acting through the Tennessee County Services Association and its Board of Directors, which is recognized as its official agency or instrumentality."

The Service is headquartered in Nashville, with regional offices in Chattanooga, Cookeville, Jackson, Johnson City, and Knoxville.

Municipal Technical Advisory Service
Executive Director:
V.C. Hobday, Ph.D. Syracuse.

Assistant Director:
J.P. Hartman, M.P.A. Tennessee.

Specialist Consultants:
C.T. Butts Jr., B.S. Tennessee (Police); J.M. Crabtree, Jr., B.S. Tennessee Tech (Personnel); J.W. Crawford, B.A. Miami (Personnel); J.A. Fitzgerald, B.A. Memphis State (Police); D.W. Huffer, J.D. Tennessee (Ordinance Codification); W.K. Joiner, B.S. Tennessee Polytechnic (Finance and Accounting); J. Kersh, B.S. Tennessee (Municipal Information); F.E. Kirk, B.S. in C.E. Southern Methodist (Public Works); J.H. Leuty, B.S. Tennessee Polytechnic (Finance and Accounting); A.D. Lewis, B.S. Missouri (Energy); A.G. Lock, Jr., B.S.G.E. Oklahoma State (Public Works); R.A. Lovelace, M.P.A. Kansas (Intergovernmental Affairs); G. Musick (Police); D.W. Owings, J.D., Tennessee (Ordinance Codification); M.T. Pentecost, B.S. Murray State (Finance and Accounting); E. Puett, J.D. Tennessee (Municipal Law).
The Seventy-Fifth General Assembly (1949) established a Municipal Technical Advisory Service at The University of Tennessee. The legislation designated the purposes to be "studies and research in municipal government, publications, educational conferences and attendance thereat, and furnishing technical, consultative, and field services to municipalities in problems relating to fiscal administration, accounting, tax assessment and collection, law enforcement, improvements and public works, and any and all matters relating to municipal government." Services are currently provided in the fields of municipal law, municipal management, public works, finance and accounting, ordinance codification, municipal information, personnel, and police administration. The state is divided into eight districts and a Municipal Consultant is assigned to each district. Most of the staff are located in the headquarters office on the Knoxville campus; regional offices are maintained in Cookeville, Jackson, and Nashville. This program is carried on in cooperation with the Tennessee Municipal League.

Center for Industrial Services

Executive Director:
R.E. Harris, M.S., Tennessee, P.E.

Assistant Director for Field Services:
R.L. Highers, B.S., Tennessee Tech, P.E.

Assistant Director for Energy Services:

Senior Field Engineers:
P.E. Eady, M.B.A., East Tennessee State, P.E.,
C.P.A.; P.E. Rinella, B.S., Tennessee, P.E.;
J.E. Ross, B.S., Geneva (Penn.), P.E.;
C.R. Vandiver, B.S., Middle Tennessee State, P.E.

Field Engineers:
P.L. Damselley, M.B.A., Memphis State;
J.O. Grigby, B.S., Georgia Tech;
B.R. Wiggs, Jr., B.S., Tennessee, P.E.

Industrial Engineer:
T.C. Parsons, M.S., Tennessee, P.E., CPA.

Industrial Librarian:
N.W. Wiesheuigel, M.L.S., Peabody.

Engineering Specialist:
W.J. Fesmire, M.S., Tennessee.

The Center for Industrial Services has the primary role of assisting Tennessee's manufacturing firms by providing technical and managerial assistance to those companies seeking assistance. By the Tennessee Public Acts of 1963, the assigned objectives for the Center are "to render services to the industries in this state by providing information, data, and materials relating to the needs and problems of industry which might be supplied and solved through research; by providing information about available research facilities and research personnel in Tennessee colleges and universities, and in governmental and private research laboratories; by keeping Tennessee's industries informed about the supply of and demand for trained qualified personnel; and by cooperating with the Governor's Staff Assistant for Industrial Development and the Tennessee Industrial and Agricultural Commission in carrying out its duties."

This statewide program encourages and assists managers of Tennessee firms to draw upon the intellectual resources of the colleges and universities to upgrade the firm's performance. Field engineers experienced in manufacturing operations take the initiative in encouraging the upgrading and expansion of management in their plant environment.

The Center for Industrial Services is headquartered in Nashville. Regional offices are maintained in Chattanooga, Cookeville, Jackson, Johnson City and Knoxville.

Center for Government Training

Executive Director:

Associate Director:

Assistant Directors:
E.K. Smith; M.D. Traughber, B.S. Middle Tennessee State; G.T. Himes, Jr., B.S. Belmont.

Regional Managers:
T.R. Carpenter, J.R. Tennessee; J.W. Fort, M.A. Austin Peay State; P.J. Gipson, B.S. Belmont College; A.C. North, Jr., B.S. Middle Tennessee State; D.R. Waynick, B.S. Lambuth.

Program Coordinator:
H.V. Price, M.S. Tennessee.

The Center for Government Training has responsibility for providing professional assistance and establishing training and career development programs for state and local government officials and employees throughout the state. Headquarters is located in Nashville, but regional offices are also maintained in Jackson and Knoxville. The Center is charged with identifying and analyzing needs for public service education and training at the state and local levels in Tennessee, and with developing and conducting programs for training of public agency employees, working with institutions of higher education in the state and other educational facilities. The Center acts as a clearinghouse for information relative to public service personnel education and training programs. In addition, the Center serves as the central administrative agency in a statewide local government training network which includes four campuses of the University and the six senior institutions in the Board of Regents system.
THE UNIVERSITY OF TENNESSEE GENERAL SUMMARY

Administration

Trustees:
Appointed by the Governor .................................................. 18
Ex-Officio ................................................................. 5

Officers of Administration:
President ................................................................. 1
Vice Presidents ......................................................... 8
Associate/Assistant Vice Presidents ..................................... 10
Chancellors ............................................................... 5
Vice Chancellors and Provost ............................................. 19
Associate/Assistant Vice Chancellors .................................. 11
Deans and Directors .................................................... 290

Full-Time and Part-Time Faculty 1978-79

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<tr>
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<th>Center for the Health Sciences*</th>
<th>Chattanooga</th>
<th>Knoxville</th>
<th>Martin</th>
<th>Nashville</th>
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<td>Associate Professors</td>
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<td>Instructors</td>
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<td>84</td>
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<td>Totals</td>
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<td>323</td>
<td>1,701</td>
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Instruction, Research, and Public Service

Officers of the Agricultural Experiment Station ........................................ 37
Officers of the Agricultural Extension Service (Includes County Agents) .................. 429
Lecturers .......................................................... 133
Graduate, Research, and Teaching Assistants, Fellows, Trainees ...................... 2,013
Officers of the UT Center for the Health Sciences-Knoxville Unit ................. 78

* Includes two vice presidential titles held by one person.
\(b\) Includes two vice presidents.
\(c\) Includes UTCHS-Knoxville Unit.
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<th>Fall 1978</th>
<th>STATEWIDE ENROLLMENT SUMMARY</th>
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<th>Institution</th>
<th>Grand Total</th>
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<th>15-18</th>
<th>19-22</th>
<th>23-26</th>
<th>27-30</th>
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<tr>
<td>Nashville</td>
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<td>27 690</td>
<td>2 496</td>
<td>5 060</td>
<td>3 194</td>
<td>5 098</td>
<td>2 480</td>
<td>4 330</td>
<td>3 230</td>
<td>2 730</td>
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<tr>
<td>Martin</td>
<td>86 874</td>
<td>4 474</td>
<td>3 330</td>
<td>4 466</td>
<td>3 833</td>
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<td>2 789</td>
<td>2 347</td>
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<tr>
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<td>7 320</td>
<td>6 906</td>
<td>5 432</td>
<td>6 329</td>
<td>6 198</td>
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<td>4 325</td>
<td>5 269</td>
<td>2 720</td>
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<td>2 228</td>
<td>1 194</td>
<td>2 480</td>
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**Sub-Total**

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<td>KnoxvillE</td>
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**Total**

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<th>Team</th>
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<th>Team</th>
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