counseling, deafness, and human services

Professors:
J.L. Cassell, Ph.D. Kansas; C.R. Colvin, Ed.D. Virginia; Kathleen L. Davis, Ed.D., Georgia; Lawrence M. DeRidder (Emeritus), Ph.D., Michigan; Mark A. Hector, Ph.D., Michigan State; Schuyler W. Huck, Ph.D., Northwestern; P.R. Kronick, Ph.D. Tennessee; T. McClim, Ph.D. South Carolina; J. H. Miller (Emeritus), Ed.D. Auburn; S.W. Mulkey, Ph.D. Florida State; Marla P. Peterson, Ph.D., Ohio State; William A. Poppen, Ph.D., Ohio State; Charles L. Thompson, Ph.D., Ohio State; Olga M. Welch (Head), Ed.D. Tennessee; M.R. Woodside, Ed.D. VPI.

Associate Professors:
D.L. Ashmore, M.S. Tennessee; J. Davis, Ph.D. New Mexico; Teresa A. Hutchens, Ph.D., Georgia; M.K. Warden, Ph.D. Tennessee.

Assistant Professor:
Amy Skinner, Ph.D. Mississippi State.

Instructors:
M. Griffin, M.S. Tennessee; A. Kirby, M.S. Tennessee; M. Kolvitz, M.S. Illinois; C.C. LaCave, M.S. Tennessee; T. Osborne, M.S. Tennessee; B. Simmons, M.S. Tennessee.

Lecturer:
W.H. Byrd, Jr., M.S. Tennessee.

educational administration and cultural studies

Professors:
J.T. DeSensi (Head), Ed.D., North Carolina (Greensboro); Clinton B. Allison, Ph.D., Oklahoma; Anand Malik, Ed.D., Columbia; Joan Paul, E.D., Alabama; W.J. Morgan, Ph.D., Minnesota; C.A. Wrisberg, Ph.D. Michigan; Richard Wisniewski, Ed.D., Wayne State; Grady Bogue, Ed.D Memphis State; W. Lee Humphreys (Adjunct), Ph.D. Union Theological Seminary; Malcolm McInnis, Ph.D. Florida State; Norma T. Mertz, Ed.D. Columbia; Gerald C. Ubben, Ph.D. Minnesota, Grady Bogue, Ed.D Memphis State; W. Lee Humphreys (Adjunct), Ph.D. Union Theological Seminary; Malcolm McInnis, Ph.D. Florida State; Norma T. Mertz, Ed.D. Columbia; Gerald C. Ubben, Ph.D. Minnesota.

Associate Professor:
Jeffrey P. Aper, Ph.D. VPI; Cynthia Norris, Ed.D. Tennessee; Barbara Thayer-Bacon, Ph.D. Indiana University; Handel K. Wright, Ph.D. Toronto.

Assistant Professor:
Leslie A. Fisher, Ph.D. Berkely.

Adjunct Professors:

adjunct associate professors:

visiting associate professor:

educational psychology

Professors:
R. Steve McCallum (Head), Ph.D. Georgia; J.J. Bellon (Emeritus), Ed.D. California (Berkeley); Ralph G. Brockett, Ph.D. Syracuse; Donald J. Dickinson (Emeritus), Ed.D. Oklahoma State; Thomas George, Ed.D. Tennessee (Knoxville); Katherine H. Greenberg, Ph.D. George Peabody of Vanderbilt; John M. Peters, Ed.D. N.C. State; C.H. Skinner, Ph.D. Lehigh; R.L. Williams, Ph.D. George Peabody.

adjunct professors:
Sherry K. Bain, Ph.D. University of Southern Mississippi; D. Tzuriel, Ph.D. George Peabody.

associate professor:

adjunct associate professors:
J.H. Morton, Ph.D. Tennessee (Knoxville); L.R. Waldrington, Ph.D. Tennessee; C.I. White, Ph.D. Tennessee (Knoxville).

adjunct assistant professors:
R.J. Carlini, Ph.D. Tennessee (Knoxville); O.H. Oliveir, Ph.D. Tennessee (Knoxville); D.L. Peccolo, Ph.D. Tennessee (Knoxville); C. D. Thomas, Ph.D. Tennessee (Knoxville); L.C. Velazquez, Ed.D., Tennessee (Knoxville); M. K. Warden, Ed.D. Tennessee (Knoxville); J.D. Wasserman, Ph.D. Miami; M.F. Ziegler, Ed.D. Columbia (New York).

exercise science and sport management

Professors:
E.T. Howley (Head), Ph.D. Wisconsin; P. Beltel (Emeritus), Ed.D. North Carolina (Greensboro); N.E. Lay (Emeritus), Ph.D. Florida State; W.P. Liemohn, Ph.D. Iowa; A.J. Koza (University Professor), Ph.D. Michigan; T.C. Namey, M.D. Washington (St. Louis); I.R.H. Rockett, Ph.D. Brown; H.B. Watson (Emeritus), Ph.D. Michigan; H. Welch (Emeritus), Ph.D. Florida.

Associate Professor:
D.R. Bassett Jr., Ph.D. Wisconsin; R.E. Jones, Ph.D. Toledo; D.R. Kelley, Ph.D. Georgia State; D.L. Thompson, Ph.D. Virginia.

Assistant Professors:
**INSTRUCTIONAL, TECHNOLOGY, CURRICULUM, AND EVALUATION**

**Professors:**
- M. Everett Myer (Head), Ph.D., Florida; Edward L. Counts, Ed.D., Texas A&M (Commerce); Donald J. Dessart, Ph.D., Maryland; E. Dale Doak (Emeritus), Ed.D., Colorado; Russell L. French, Ph.D., Ohio State; Theodore Hipple, Ph.D., Illinois; John R. Ray, Ed.D., Tennessee; C.E. Roeske (Emeritus), Ph.D., Ohio State.

**Associate Professors:**

**Assistant Professor:**
- Aileen Nonis, Ph.D. Virginia.

**Adjunct Assistant Professors:**

**Associate Professors:**

**DANCE MINOR**

**Core Courses**

<table>
<thead>
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<th>Course</th>
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<tr>
<td>Dance 480</td>
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<tr>
<td>Dance 490</td>
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**AND**

**OPTION I: PERFORMANCE**

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<tr>
<td>Dance 101 or 201</td>
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</tr>
<tr>
<td>Select from Dance 310*, 320*, 330*, 340*, 410*, 420**, 430**</td>
<td>10</td>
</tr>
<tr>
<td>Dance 440</td>
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</tr>
<tr>
<td>Dance 445</td>
<td>2</td>
</tr>
<tr>
<td>Dance 495</td>
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**OPTION II: PEDAGOGY**

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<td>Dance 420</td>
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<tr>
<td>Dance 445</td>
<td>2</td>
</tr>
<tr>
<td>Dance 495</td>
<td>3</td>
</tr>
</tbody>
</table>

Total: 21 hours

*Course may be repeated for up to 12 credit hours.
**Course may be repeated for up to 16 credit hours.

**EVALUATION**

**ART EDUCATION**

Students seeking licensure to teach art in the schools pursue the Bachelor of Fine Arts Degree in Studio Art in the College of Arts and Sciences and will complete a major in Art Education at the undergraduate level. The undergraduate major in Art Education includes the following:

- **Art Education 401** Theory and Practice in Teacher Education 505 ........ 6
- **Art Education 400** Professional Year
- **Art Education 351** Theory and Practice in Teacher Education 422 ........ 6
- **Education 400** Library and Information Science 330 ........................ 3
- **Art Education 300** Art Education 574 ........................................ 2
- **Art Education 300** Art Education 575 ........................................ 2
- **Art Education 300** Art Education 591 ........................................ 4
- **Art Education 300** Art Education 590 ........................................ 3
- **Art Education 300** Art Education 540 ........................................ 3

Undergraduate Total: 24 hours

**THEORY AND PRACTICE IN TEACHER EDUCATION**

**Professors:**

**Associate Professors:**
- Gina Barclay-McLaughlin, Ph.D. Michigan; Lynn C. Cagle, Ed.D. Georgia; Charles A. Chance, Ph.D. Ohio State; Colleen Giranne, Ph.D. Illinois; Michael C. Hannum, Ed.D. Northern Colorado; R.L. Hodge, Ph.D. Texas; Sharon H. Judge, Ph.D. California (Santa Barbara); Claudia Melear, Ph.D. Ohio State; Kathleen S. Puckett, Ph.D. Tennessee; T.K. Ryan (Emeritus), Ed.D. Ball State.

**Instructor:**
- Jennifer Butterworth, Ph.D. Vanderbilt.

**Adjunct Instructors:**
- Lyle Craig, Ph.D. Tennessee; Sherry Morgan, Ed.D. Tennessee; Barbara Porter, M.S. Tennessee; Sandra Forester, M.S. LMU (Tennessee).

**ART EDUCATION**

Students seeking licensure to teach art in the schools pursue the Bachelor of Fine Arts Degree in Studio Art in the College of Arts and Sciences and will complete a major in Art Education at the undergraduate level. The undergraduate major in Art Education includes the following:

- **Art Education 301** Art Education 505 ........ 6
- **Art Education 302** Professional Year
- **Art Education 303** Theory and Practice in Teacher Education 422 ........ 6
- **Art Education 400** Library and Information Science 330 ........................ 3
- **Art Education 300** Art Education 574 ........................................ 2
- **Art Education 300** Art Education 575 ........................................ 2
- **Art Education 300** Art Education 591 ........................................ 4
- **Art Education 300** Art Education 590 ........................................ 3
- **Art Education 300** Art Education 540 ........................................ 3

Undergraduate Total: 24 hours

The following courses are taken during the post baccalaureate, Professional Year:

- **Professional Year**
  - Education 574 ........................................ 2
  - Education 575 ........................................ 2
  - Education 591 ........................................ 4
  - Art Education 530 ........................................ 3
  - Art Education 540 ........................................ 3

Graduate Total: 24 hours

**NOTE:** Teacher licensure is granted at the successful completion of the Professional Year; 12 additional hours may be taken to complete the Master’s Degree. For details, see the Graduate Catalog.
ENGINEERING
COMMUNICATION AND PERFORMANCE MINOR

Required Courses
- Counselor Education and Counseling
- Psychology 206
- Counseling Psychology 306
- Psychology 406
- Management 440
- Human Resource Development 471
- Select two of the following courses:
  - Psychology 360
  - Management 440
  - Speech Communication 420
  - Speech Communication 440

Total: 15 hours

EXERCISE SCIENCE

Freshman
- Exercise Science 100
- English 101, 102
- Mathematics 123-125 or 141-142 or 151-152
- Chemistry 120
- Psychology 110
- Humanities Elective
- Foreign Language, Multicultural, or Integrative Elective

Sophomore
- Anatomy and Physiology 231
- Sports Science Elective
- Integrative Elective
- Foreign Language, Multicultural, or Integrative Elective

Junior
- Exercise Science 235, 333, 350
- Cultural Studies in Education 290
- Cultural Studies in Education 291, 321, or 372
- Computer Science 100
- Social Science Elective
- History Elective
- Professional Electives

Senior
- Exercise Science 411, 412, 422, 480
- Health 425 or 435 or 465
- English 295 or 380
- Humanities Elective
- Professional Electives
- CPR Certification

Total: 127-129 hours

HUMAN SERVICES

Freshman
- English 101, 102
- Natural Science Electives
- Mathematics Electives
- Foreign Language Electives
- Humanities and Art Elective
- Social Science Elective

Sophomore
- Human Services 220, 330
- Psychology 330
- History (Non-U.S.) Electives
- Humanities or Arts Electives
- Computer Science 100
- Social Science Elective
- Elective

Junior
- Human Services 380, 390
- Psychology 360
- Professional Electives
- Electives

Total: 121 hours

HUMAN SERVICES:
EDUCATIONAL INTERPRETING CONCENTRATION

Freshman
- English 101, 102
- Natural Science Electives
- Mathematics Electives
- Foreign Language Electives
- Humanities and Art Elective
- Social Science Elective

Sophomore
- Human Services 220, 330
- Psychology 330
- History (Non-U.S.) Electives
- Humanities or Arts Electives
- Computer Science 100
- Social Science Elective
- Elective

Junior
- Human Services 380, 390
- Psychology 360
- Professional Electives
- Electives

Total: 121 hours

SECONDARY EDUCATION MINOR

Students interested in becoming Secondary school teachers earn a BA or BS degree in the College of Arts and Sciences (e.g., English, mathematics, etc.). While completing requirements for the baccalaureate degree, students are encouraged to take a minor in Secondary Education.

Hours Credit
- Science Education 352
- Instructional Technology, Curriculum, and Evaluation 355
- Education 400
- Education 401
- Educational Psychology 210
- Instructional Technology, Curriculum, and Evaluation 486

Undergraduate Total: 15 hours
The following courses are taken during the post-baccalaureate, Professional Year:

**Professional Year**

Education 574 .......................................................... 2  
Education 575 .......................................................... 12  
Education 591 .......................................................... 4  
English Education 461 .............................................. 3  
Human Services 223, 410, 415, 416, 419, 425 .......................................................... 19  
Rehabilitation and Deafness 223, 410, 415, 416, 419, 425 .......................................................... 19  
Audiology and Speech Pathology 303 and 473 or Rehabilitation and Deafness 424 ................. 6  
Theory and Practice in Teacher Education 310 (3), 320 (3) .................................................. 6  
Audiology and Speech Pathology 494 .......................................................... 3  

**Graduate Total:** 24 hours

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Note: Teacher licensure is granted at the successful completion of the Professional Year; 12 additional hours may be taken to complete the Master’s Degree. For details, see the Graduate Catalog.

**SPORT MANAGEMENT**

The Sport Management major is designed for students interested in working in the sport industry. The program combines Sport Management and Sport Studies with a minor in Business Administration. The program includes a semester-long internship experience.

**Freshman**

- English 101, 102 ....................................................... 6  
- Communications 100 or Journalism 201 .................. 3  
- Foreign Language, Multicultural, or Integrative Electives .............................................. 6  
- General Electives .......................................................... 3  
- History Electives .......................................................... 6  
- Management 110 ....................................................... 1-4  
- 1Humanities Elective .................................................. 3  
- Mathematics 123-125 .................................................. 6  
- Sociology 291 .......................................................... 3  
- Speech 210 or 240 ...................................................... 3  
- Sport Management 250 .............................................. 3  
- 1Economics 201 .......................................................... 4  
- Natural Science Electives ............................................ 8  
- Sociology Elective .................................................... 3  
- Speech 210 or 240 ...................................................... 3  
- 1Sport Management 290 .............................................. 3  
- Junior  
- Finance 301 .......................................................... 3  
- Management 301 ....................................................... 3  
- Humanities Elective .................................................. 3  
- CSE 321 or CSE 372 ................................................... 3  
- Marketing 301 .......................................................... 3  
- Recreation, Tourism Management 310 .................... 3  
- Sport Management 350 .............................................. 3  
- Sport Management 390 .............................................. 3  
- Computer Science 100 .............................................. 3  
- General Electives ...................................................... 3  
- Senior  
- Recreation, Tourism Management 410 .................... 3  
- Recreation, Tourism Management 430 .................... 3  
- Business Elective ...................................................... 3  
- Sport Management 415 or Recreation, Tourism Management 440 ...................................... 3  
- Sport Management 490 .............................................. 12  
- Choose two from the following: 1Sport Management 370, 440, 450 .............................................. 4-6  

**Total:** 130-133 hours

1. Business minor requirement.  
2. Practicum courses in Sport Management are required prior to enrolling in internship.  
3. Admission to and retention in the Sport Management Major is contingent upon achieving and maintaining a 2.5 GPA.  
4. A 2.5 GPA is required for internship.

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1. A physical or biological science course to complete science sequence.
College of Engineering

Jerry E. Stoneking, Dean
Fred T. Gilliam, Associate Dean, Academic Affairs
Fred D. Tompkins, Associate Dean, Administration
Walter N. Odom, Director, Cooperative Engineering and Professional Practice
James T. Pippin, Director, Engineering Diversity Programs

Engineers solve problems. To do so, they apply science, mathematics, and creativity to invent, design, test, build, and operate engineering systems that will meet the needs of society. In the latter half of the 20th century, engineers developed the personal computer, the space shuttle, artificial hearts, and many other “high-tech” products. The opportunities to use technology for the benefit of 21st century society will be even greater.

Engineers use the same problem solving strategies whether designing a bridge, trouble shooting a computer chip problem or developing a more efficient automobile engine. This commonality of approach makes it easy for an engineer to move from one specialization to another, and it happens frequently. The engineer’s can-do, problem solving outlook is another, and it happens frequently. The college’s five-year Cooperative Engineering Program was established in 1926. The University of Tennessee was one of the early pioneers in this valuable type of education.

Graduates of the B.S. curricula offered by the college may enter directly into a position in industry, government, or private practice, or may pursue advanced study in graduate school. Their professional activities include research, development, design, operations analysis, construction, production supervision, and technical sales. Many practice their profession in Tennessee; but engineering knows no geographical bounds, and graduates of the college serve throughout the nation and in other countries as well.

The college, in cooperation with industrial sponsors, established the Minority Engineering Scholarship Program in 1973. The program goal is to increase significantly the number of qualified minority engineering graduates.

The college has eleven major undergraduate curricula in which a student may specialize: aerospace engineering, biomedical engineering, chemical engineering, civil engineering, computer engineering, electrical engineering, industrial engineering, materials science and engineering, mechanical engineering, nuclear engineering, and engineering physics.

Biosystems engineering is based in the College of Agricultural Sciences and Natural Resources with facilities located on the Agricultural Campus. The biosystems 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 Agricultural Sciences and Natural Resources section of this catalog.

FACILITIES

Most of the college’s facilities are on the southeastern corner of The Hill. Administration, Civil and Environmental Engineering, and Biomedical Engineering are in Perkins Hall; Electrical and Computer Engineering are in Ferris Hall; Industrial Engineering and the Interdisciplinary Engineering Research Centers are in Estabrook Hall. The Engineering Fundamentals Division is located in Estabrook Hall. The Co-op Office and the Engineering Diversity Programs Office are in

COOPERATIVE ENGINEERING AND PROFESSIONAL PRACTICE

The five-year Cooperative Engineering Program (Co-op) is offered in order to provide an augmented engineering education that includes significant experience in industry as well as superior academic preparation. Our Cooperative Engineering Program was established in 1926. The University of Tennessee was one of the early pioneers in this valuable type of education.

Co-op work assignments differ from part-time or summer employment in that they involve regularly scheduled cycles of full-time academic terms alternating with full-time work periods, resulting in planned, career-related work terms of progressive complexity and responsibility. In introducing the student to engineering employment, the college and industry join together to offer a broader and richer preparation for postgraduate employment than can be provided by a conventional academic program. This experience in an industrial and professional environment contributes to the student’s maturity, accelerates professionalism, offers an opportunity to apply engineering course work in a real-world setting, and enables the student to define more clearly educational and career interests and objectives. All positions are paid positions, and most students are able to offset a substantial amount of their college expenses with Co-op savings.

Introduction to the Cooperative Engineering Program (for new students, transfers, second-degree students, and re-entry students) begins in the first semester at the university. Assignments are determined by employer and student. All engineering students are encouraged to visit the program office.

Candidates must be able to project a minimum of 52 weeks of Co-op experience prior to the senior year, within the regular alternating sequence, to qualify for an assignment.
Further details may be obtained from the Cooperative Engineering Program, 310 Perkins Hall, The University of Tennessee, Knoxville, TN 37996-2012. You may also contact the Co-op office via e-mail at coop@engr.utk.edu or via the program homepage at http://www.engr.utk.edu/~coop/

**INTERNATIONAL ENGINEERING PROGRAM**

The United States, like most countries throughout the world, can no longer thrive economically on the domestic market for its goods and services. To compete in the global marketplace, engineers must understand how to design and manufacture products for world-wide use. The College of Engineering works with several organizations, both on and off campus, to enable interested students to participate in significant engineering experiences abroad. Students interested in making an international experience part of their engineering education should begin exploring opportunities and develop plans during the freshman year. Language preparation to a level of substantial proficiency may be required. Thus, language preparation should be started immediately. For further information on international educational programs, contact the UT Center for International Education, 1620 Melrose Avenue.

**GRADUATE PROGRAM**

Graduate programs leading to the degree of Master of Science are offered in eleven areas of study: aerospace engineering, chemical engineering, civil engineering, electrical engineering, engineering science, environmental engineering, industrial engineering, materials science and engineering, mechanical engineering, nuclear engineering, and polymer engineering. The degree of Doctor of Philosophy is offered in nine major subjects: aerospace engineering, chemical engineering, civil engineering, electrical engineering, engineering science, mechanical engineering, nuclear engineering, and polymer engineering. Information concerning graduate programs is given in the Graduate Catalog.

**TAU BETA PI NATIONAL HEADQUARTERS**

The college is honored to have the national headquarters of Tau Beta Pi, the National Honor Society, housed on our campus. This honor was earned in part through the untiring efforts of R.C. “Red” Matthews, who served as secretary-treasurer for the organization from 1905 to 1947. The suite of offices, located in Dougherty Hall, is occupied by Mr. J.D. Froula, secretary-treasurer, Roger Hawks, Assistant Secretary-Treasurer, and his staff.

**CURRICULA IN ENGINEERING**

**National Accreditation**

Since 1936, engineering programs at institutions of higher learning have been accredited by an organization formed by many engineering societies and known as the Accreditation Board for Engineering and Technology (ABET). ABET accreditation ensures that graduates of UT engineering programs are adequately prepared to enter and continue the practice of engineering. Accredited engineering programs at UT include aerospace, biosystems, chemical, civil, electrical, engineering science, industrial, mechanical, materials science, and nuclear. Co-op programs in the above areas are also accredited.

Accreditation criteria require each engineering degree program to design a curriculum and educational process that will achieve defined educational objectives consistent with ABET criteria and the mission of UT. The educational objectives of each degree program are presented by the department responsible for the program later in this chapter. In each case the objectives are consistent with the mission of the College of Engineering. That mission is to:

1. provide high quality education in the major engineering disciplines from the undergraduate through doctoral levels through a creative balance of academic, professional, and extracurricular programs;
2. foster and maintain mutually beneficial partnerships with alumni, friends, industry, and local, state, and federal governments through public services, assistance, and collaborative research; and
3. to be a major contributor to our nation’s technology base through scholarship and research.

In addition, the educational objectives of each degree program are also guided by and consistent with the strategic objectives of the College of Engineering. Two particularly relevant strategic objectives are “to continuously prepare students for success among entering freshmen” and “to continuously improve and provide the education and working abilities that employers want our engineering graduates to have.”

ABET accreditation criteria also require an assessment process to ensure that program outcomes critical to successful engineering practice are being achieved. Assessment of eleven program outcomes common to all engineering disciplines required by ABET, specifically, each engineering degree program must demonstrate that its graduates have:

1. an ability to apply knowledge of mathematics, science, and engineering;
2. an ability to design and conduct experiments, as well as to analyze and interpret data;
3. an ability to design a system, component, or process to meet desired needs;
4. an ability to function on multi-disciplinary teams;
5. an ability to identify, formulate, and solve engineering problems;
6. an understanding of professional and ethical responsibility;
7. an ability to communicate effectively;
8. the broad education necessary to understand the impact of engineering solutions in a global/societal context;
9. a recognition of the need for and an ability to engage in life-long learning;
10. a knowledge of contemporary issues;
11. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

The College of Engineering has embraced these program outcomes as valid and valuable indicators of educational program effectiveness. Thus, the College prepares students to demonstrate sufficiency and to strive for excellence in each of these areas. This goal is achieved by ensuring that instruction and other learning experiences are provided that will produce each program outcome. Engineering courses, mathematics courses, and natural science courses, and the humanities and social sciences each provide essential contributions to the achievement of this goal. Program outcomes that are critically dependent on humanities and social science courses are discussed in the General Education Requirements section to follow. Additional program outcomes selected by individual degree programs to supplement ABET outcomes are also discussed in subsequent sections.

**DESIGNATION OF A MINOR**

An engineering undergraduate may declare a minor in a non-engineering subject area and have the minor listed on the permanent record under the following conditions:

1. Minors must be officially approved and described in the UT catalog. No unofficial minors will be recognized. Minors exist in aerospace engineering, environmental engineering, materials science and engineering, engineering communication and performance, architecture, business administration, and in numerous departments in agricultural science and natural resources, and arts and sciences.
2. Courses taken to satisfy the minor may also be used to satisfy engineering degree requirements, provided that the courses would be a part of engineering degree requirements even if no minor was declared. Completion of a minor often involves the taking of some courses which cannot be used to satisfy the minimum requirement for an engineering degree.
3. A student should notify his or her advisor and major department office when beginning work on a minor. The intention to complete a minor must be declared at the time of application for a degree if the minor is to appear on the final transcript. Degree applications are handled by the UT Records Office.

**COURSE LOAD**

The maximum number of hours which can be taken by an undergraduate engineering student without special permission is 19. The Associate Dean for Academic Affairs must give permission to take 20 hours or more. In general, this decision is based on the student’s previous performance at UT.

**GENERAL REQUIREMENTS**

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

**Freshman Placement Criteria.** Placement criteria are in effect for the College of Engineering to promote the maximum opportunity for success among entering freshmen. A success prediction indicator (SPI) is calculated for all incoming students. The SPI is calculated by multiplying the High School GPA by 10 and adding the resulting product to the math component of the ACT. SAT scores can be converted to an equivalent ACT score to perform this calculation. A pre-requisite for the first engineering course, Engineering Fundamentals 101, is a SPI of equal to or greater than 55, with a co-requisite of Math 130 (pre-calculus) or higher.
math course. Math placement is determined by examination during orientation. Entering engineering students who do not meet the SPI pre-requisite or cannot qualify for placement in at least Math 130 have the following options:

- Attend the University of Tennessee summer session or another institution and complete a transferable math course equivalent to Math 130 (pre-calculus) with a grade of B or better and a transferable English course equivalent to English 101 with a grade of C or better. OR
- Enroll in our engineering transition curriculum that prepares students to begin EF 101 in their third semester.

Transfer Students
Transfer students, including internal UT transfers, must meet the minimum requirements stated below in order to be considered for admission to a major within the College.

1. Have earned a minimum 2.30 cumulative average over these specific courses, or their equivalent: English 101, 102; Chemistry 120, 130; and Math 141, 142.

2. The overall record will be evaluated for quality and purpose. An excessive number of withdrawals, incompletes, repeated courses, or failure may result in denial.

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

Transfer Credit
Every attempt will be made to give maximum credit for courses taken elsewhere and transferred to the college. Discussions concerning the evaluation of transfer credits should be conducted with the head of the department (or designee) into which the student is to transfer, but only after receiving the evaluation of transfer credits by the Admissions Office.

Program for Second B.S. Degree
Upon approval by the Dean of Engineering and the Committee on Degrees of a program of study recommended by the major engineering department, a student who already holds a bachelor’s degree may obtain a degree in engineering upon meeting all of the course requirements of the selected engineering program. In no case will the minimum requirement be less than 30 semester credits. The prevailing University regulations shall apply.

Satisfactory/No Credit Courses
Engineering majors may take half of the minimum hours required (9) of general education electives on a Satisfactory/No Credit (S/NC) grading basis. No other courses specified as part of the minimum degree requirements may utilize S/NC grading, unless a course is offered only on that grading basis. Students are encouraged to take courses of interest which are not part of the minimum degree requirements, and to fully utilize the S/NC grading option for such coursework.

Correspondence Courses
A student should check with his or her major department to see what restrictions there are, if any, on the use of correspondence course credit to meet the minimum degree requirements.

General Education Electives
Engineering practice is shaped by many non-technical considerations. Economic, safety and ethical matters have long been of concern. In recent years increasing influence has been exerted by legal, political, government, cultural, and international factors. Courses in the humanities and social sciences serve to meet the vital need for awareness and knowledge of these influences on the engineering profession. In addition, they support the UT general education goal to develop the basic skills, knowledge, attitudes and judgment necessary for effective citizenship, fulfilling personal interactions and an enriched personal life. Lastly, ABET accreditation requirements mandate a strong general education component as a necessary part of achieving engineering program objectives. Humanities and social science courses contribute significantly to the educational objectives of each engineering program and the program outcomes desired of every engineering graduate. In fact, certain program outcomes are critically dependent on contributions from these courses. Thus, in the College of Engineering, humanities and social science courses do more than meet the breadth requirement in the educational experience. They also complement and support engineering courses in developing skills and providing experiences critical to the practice of engineering.

Program outcomes supported by the general education component in engineering curriculum and a cluster of courses relevant to that outcome are shown below. The first two outcomes, (1) the broad education necessary to understand the impact of engineering solutions in a global/societal context and (2) a knowledge of contemporary issues, have a fundamental relationship to humanities and social science courses. All engineering students are required to take at least one course from each of these clusters. Engineering programs may specify up to two other clusters that are required in their curriculum to ensure that each program outcome is achieved by either engineering coursework, general education electives, or a combination of the two.

General education requirements in English composition, mathematics, and natural science are fully satisfied by required courses in each engineering curriculum. Electives from the humanities and social sciences, in addition to supporting selected engineering program outcomes, must also satisfy general education requirements for these areas of study. Thus, to ensure general education compliance, engineering students must take at least two courses from the arts or humanities clusters; one course from multicultural studies or a two course foreign language sequence; and one course from the natural science cluster. Additional general education electives can be chosen from any other clusters to provide breadth or depth as desired by the student, but a minimum of 18 semesters hours is required.

To be accepted as valid within the context of the University’s general education requirements, each course must meet the generally accepted definitions that (1) humanities are the branches of knowledge concerned with humanitie and culture; (2) the arts include performance and/or analysis of the visual and written arts, music or theatre, and (3) social sciences are the studies of individual relationships in and to society. Subject areas in the humanities include history, English, philosophy, religion, and classics. The arts will include courses in music, art, theatre and creative writing. Subject areas in the social sciences include sociology, psychology, economics, anthropology, and political science. Acceptability is determined by course content, not by title or administrative home.

Examples of courses not acceptable in the engineering general education program include: (1) a language course in the student’s native language; (2) military science courses unless they are either on the approved list or officially equivalent to a course in the humanities or social sciences in another department; (3) courses whose basic content is science or mathematics; (4) engineering economy; and (5) professional courses in other fields—business, communications, etc.

A course not on the approved list must be approved by the student’s advisor, department head, and the associate dean (in this order), and the approval must be recorded on a departmental substitution form and submitted to the Records office. Transfer courses must be so approved, unless a suitable UT equivalent number has been assigned as a part of the admissions process.

A student is urged to seek guidance from his or her advisor in choosing these electives, since they are an important part of the learning experience for engineering practice. Choices should be made on the basis of personal interest and value in engineering practice. Up to 9 hours in this category may be taken on an S/NC grading basis. Credit earned by Advanced Placement or courses transferred from another university as “Satisfactory” are included in the 9 hour limit. However, if more than 9 hours of general education courses have been earned by AP or transfer credit, students may apply for a waiver of the 9 hour limit.

These requirements are not intended to inhibit in any way the selection of courses to be taken by a student while attending UT. There may be courses of interest to a student which are not included on the lists below, but would be of great value in the student’s education. Students are encouraged to consult with their advisor in order to incorporate such courses into their program of study.

The requirements for the general education component of all engineering curricula are:

1. The minimum number of semester credit hours of acceptable courses is 18.
2. One course from the Engineering Practice in a Global/Societal Context Cluster.
3. One course from the Contemporary Issues Cluster.
4. Other courses or clusters as established by departmental requirements to support selected program outcomes.
5. A minimum of:
   a. two courses from the Humanities or Arts clusters;
   b. one course from the Multicultural Studies Cluster or two foreign language courses;
   c. one course from the Social Sciences Cluster.
Approved General Education Electives

Courses included on the list below have been approved by the faculty as general education electives. Any course not on this list must be approved through the major department prior to enrollment in the course. Where such phrases as “any psychology course” are used, special topics courses in that area are specifically excluded since the content is variable. Students should seek approval from their advisor prior to enrollment in such special topics courses.

Engineering Practice in a Global/Societal Context Cluster


Contemporary Issues Cluster

African and African-American Studies 343, 364, 420, 429, 442, 473, 480, 483; Agriculture and Natural Resources 101, 333; American Studies 343, 345, 420; Anthropology 130, 320; Business Law 301; Child and Family Studies 220, 240, 420; Communications 100, 150; Geology 201, 202; History 320, 442, 446; Human Services 220; Philosophy 240, 250, 342, 344, 345, 361, 363, 379, 382, 390; Political Science 311, 315, 350; Religious Studies 319; Sociology 110, 319, 330, 340, 343, 344, 345, 360, 363, 373, 375, 414, 415, 442, 446, 451, 462, 464; Speech Communication 469; University Studies 311, 321, 322; Women’s Studies 220, 230, 310, 360, 375.

Multi-disciplinary Teams Cluster

Counselor Education and Counseling Psychology 206, 306; Psychology 360, 409, 449; Sociology 120, 320; Speech Communication 220, 230, 240, 300, 310, 320, 330, 420.

Professional and Ethical Responsibility Cluster

Military Science 240; Philosophy 240, 342, 344, 345, 346; Religious Studies 344, 345; University Studies 322.

Effective Communications Cluster

English 263, 295, 355, 360, 455; Information Sciences 450; Journalism 450, 456; Speech Communication 210, 220; Theatre 220, 221. Any sequence of foreign language courses.

Life-Long Learning Cluster

Cultural Studies in Education 302, 451; Philosophy 110, 111; Psychology 310.

Aesthetics in Design Cluster


Humanities Cluster

Any British or American literature course. Any foreign language literature course including those using English translations. Any course from History, Philosophy, Medieval Studies or Religious Studies. Asian Languages 311, 312, 313, 314; Cinema Studies 281, 323, 325, 334, 420, 421, 433, 465; Classics 221, 222, 253; Comparative Literature 202, 203; Women’s Studies 210, 215, 320, 383.

Arts Cluster

Architecture 111; Art 191; Art History 172, 173, 183; Classics 232, 233; English 263, 363; Music*; Music History 110, 115, 120, 210, 220, 290, 310, 330, 340, 341, 350, 380, 390; Philosophy 350, 353; Theatre 100, 220*, 310, 311, 313.

* Courses involving skill development in the arts (Art 191, Theatre 220 or music courses that include vocal or instrumental performance) may be used as General Education Electives up to a maximum of 3 semester hours.

Multicultural Studies Cluster


Social Sciences Cluster


American History Requirement

Engineering students, regardless of national origin, must fulfill the American history requirement described elsewhere in this catalog. Those students who have not had the required year of American history in high school may choose the required six semester hours from History 221 and 222, or other courses deemed suitable by the Department of History. These hours may be counted as part of the required block of humanities and social science electives.

Technical Electives

Technical electives are to be selected with the advice and approval of the student’s major department. In some of the curricular tabulations a choice of such electives is indicated, and regulations in regard to their selection are stated.

The Voluntary Rotc Program

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

Approval of Electives and Substitutions

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

Engineering Fundamentals Division

Professors:

J.R. Parsons (Mechanical and Aerospace Engineering and Engineering Science), Director; R.M. Bennett (Civil and Environmental Engineering); J.H. Forrester (Mechanical and Aerospace Engineering and Engineering Science); O. Soliman (Mechanical and Aerospace Engineering and Engineering Science).

Associate Professors:

C.D. Pionke (Mechanical and Aerospace Engineering and Engineering Science); D.R. Raman (Agricultural and Biosystems Engineering); T.H. Scott (Nuclear Engineering); J.E. Seat (NSF Research Associate Professor), Ph.D. Tennessee; T.H. Scott (Nuclear Engineering); F.E. Weber (Chemical Engineering); D.C. Yoder (Agricultural and Biosystems Engineering).

The Engineering Fundamentals Division is the academic home for all first year engineering students. Located in Estabrook Hall, the Division serves as a focus for all freshman student activities. The faculty of the Division act as academic advisors and teach the principal courses in Engineering Fundamentals. These courses are designed to prepare students for entry into the Sophomore year of every degree program in the College. Academic standards in the first year are necessarily high. To assist students with deficient academic backgrounds in the necessary math and computer skills, supplementary courses are offered as needed. No degree is awarded by the Engineering Fundamentals Division. The division co-administers (with the College of Education) the Engineering and Communication and Performance Minor for engineering students desiring addi-
to improve the educational process.

New freshman students are assigned to the College of Engineering to require that designate a field of study by the end of their freshman year. As sophomores, students are assigned faculty advisors in their selected departments.

BIOSYSTEMS ENGINEERING
(See College of Agricultural Sciences and Natural Resources)

CHEMICAL ENGINEERING

Professors:  J.R. Collier (Head), Ph.D. Case Institute of Technology; M.R. Aliy (Adjunct), Ph.D. Pittsburgh; P.R. Bienkowski, Ph.D. Purdue; R.M. Counce, Ph.D. Tennessee; P.T. Cummings (Distinguished Scientist), Ph.D. U. of Melbourne (Australia); G.C. Frazier, Jr. (Emeritus), D. Eng. Johns Hopkins; J.M. Holmes (Emeritus), Ph.D. Tennessee; C.F. Moore (Distinguished Service Professor), Ph.D. Louisville State; J.J. Perona (Emeritus), Ph.D. Northwestern, PE; J.W. Prados (University Professor), Ph.D. Tennessee; PE; J.S. Watson (Adjunct), Ph.D. Tennessee.

Associate Professors:  J.S. Arnold (Adjunct), Ph.D. Tennessee; D.D. Bruns, Ph.D. Houston; J.P. Coates (Adjunct), Ph.D. University of West London; B.H. Davidson (Adjunct), Ph.D. California Institute of Technology; C.S. Daw (Adjunct), Ph.D. Tennessee; D.W. DePaoli (Adjunct), Ph.D. Idaho; J.J. Ferrada (Adjunct), Ph.D. Tennessee; M.C. Hu (Adjunct), Ph.D. Idaho; J.W. Lee (Adjunct), Ph.D. Cornell; J.J. Sirola (Adjunct), Ph.D. Wisconsin; T.W. Wang, Ph.D. Massachusetts Institute of Technology; F.E. Weber, Ph.D. Minnesota.

Assistant Professors:  B.J. Edwards, Ph.D. Delaware; P.D. Frymier, Ph.D. Virginia; D.J. Kefler, Ph.D. Minnesota.

BACHELOR OF SCIENCE PROGRAM

Chemical engineering deals with the development, design, operation, and management of plants and processes for economical, safe conversion of chemical raw materials to useful products. It is a broadly based discipline with heavy emphasis on chemistry and mathematics, with supporting study in areas such as physics, materials, and humanities.

Chemical engineering graduates of the University of Tennessee possess the knowledge base, intellectual skills, and professional commitment that prepare them for innovative technical leadership; graduate study; productive service to society; and continued professional growth through lifelong learning. Preparation is based in the learning objectives identified below, regular evaluation of the achievement of these objectives, and use of evaluation results to improve the educational process.

Technical Knowledge Base: Graduates of the UT chemical engineering program demonstrate the ability to apply knowledge of mathematics, chemistry, other sciences, and engineering to identify and solve problems dealing with material and energy balances applied to chemical processes; thermodynamics of physical and chemical equilibria; heat, mass, and momentum transfer; continuous and stagewise separation operations; chemical kinetics and reactors; and process dynamics and control.

Analytical Skills: Graduates of the UT chemical engineering program demonstrate the ability to apply the following analytical skills in the solution of engineering problems: differential and integral calculus, ordinary differential equations, linear algebra, statistical methods, and numerical methods.

Problem Formulation and Solution Skills: Graduates of the UT chemical engineering program demonstrate the ability to formulate a technical problem in terms that permit a solution, identify the appropriate tools to address a technical problem, make simplifying assumptions required to solve with appropriate level of rigor, identify and collect information needed to obtain the solution, and evaluate the reasonableness of the solution.

Experimental Skills: Graduates of the UT chemical engineering program demonstrate the ability to plan experiments to meet specified objectives, conduct such experiments carefully and safely, and analyze and interpret experimental data in terms of process models.

Information Technology Skills: Graduates of the UT chemical engineering program demonstrate the ability to apply computer skills in engineering problem solving. These include computation, communication, and data acquisition skills that keep pace with evolving technology.

Process Design and Synthesis Skills: Graduates of the UT chemical engineering program demonstrate the ability to formulate and solve open-ended problems that require evaluation of alternatives with respect to specified criteria; size equipment to meet process objectives; apply the principles of engineering economics to estimate capital investment and operating costs for specified process equipment and systems; develop an appropriate flowsheet to meet a process objective; calculate the material and energy balances for a given process flowsheet; employ computer-based process design tools and techniques; optimize the design of conceptual process with respect to specified criteria that include safety, environmental impact, operability, and economics; and analyze and compare alternative designs.

Communication Skills: Graduates of the UT chemical engineering program demonstrate the ability to communicate effectively in writing; speaking, and listening in a variety of contexts. Specific skills include the ability to write effective reports, experimental procedures, memora, and similar documents; make effective oral presentations and critique presentations by others; prepare and use appropriate visual representations in both written and oral presentations; and critically evaluate technical material presented in lectures and seminars.

Teamwork Skills: Graduates of the UT chemical engineering program demonstrate the ability to function as effective team members and leaders. This includes the ability to work effectively with other team members; employ appropriate team facilitation procedures as needed; organize and lead a team effort; and contribute individual expertise in achieving team goals.

Lifelong Learning Skills: Graduates of the UT chemical engineering program recognize the need for and are able to engage in lifelong learning. Students will have the ability to obtain needed information from libraries and electronic data bases; the ability to use the Internet as an effective communication and research tool; the ability to use distance learning media to independently complete required assignments; and familiarity with lifelong learning resources available through professional societies.

Professional Commitment: Graduates of the UT chemical engineering program demonstrate high standards of professional and ethical responsibility. Students are required to take a course preparing them for the Fundamentals of Engineering examination, receiving a grade based on their performance on a "mock Fundamentals of Engineering examination," and are strongly encouraged to pursue the path to registration as Professional Engineers.

Safety, Health, and Environmental Protection: Graduates of the UT chemical engineering program demonstrate an understanding of chemical process safety, including occupational safety and health and minimization of adverse environmental impact.

Understanding the Global and Societal Impact of Engineering: Graduates of the UT chemical engineering program demonstrate an appreciation for the global and societal impact of engineering decisions.

Appreciation of the Cultural Heritage: Graduates of the UT chemical engineering program demonstrate an appreciation for human cultural heritage.

The curriculum provides a central core of required courses with flexibility in the upper-division years to permit emphasis on preparation for graduate school or professional employment.

DEPARTMENTAL GRADUATION REQUIREMENTS

To graduate in chemical engineering, students must complete the published curriculum with a grade of C or better in all required chemical engineering courses.

A minimum of 18 semester hours of general education courses are required. These courses must meet the college general education requirements listed under “Curricula in Engineering.” A 3 semester-hour technical writing course must be included in the general education electives.

HONORS PROGRAM

The honors program encourages highly motivated students to experience a more rigorous preparation in chemical engineering. Admission is selective. Application to the honors program is made when the student applies for upper division status. Honors requirements are: credit for 3 of the 4 honors seminars (ChE 307, 308, 407 and 408), ChE 447, one of ChE 467, 477, 488 or 498 as a technical elective and Chem 483 as a chem option. Students interested in the honors program should consult the department’s honors coordinator.
PROGRESSION TO UPPER DIVISION

Progression of chemical engineering students to departmental upper division courses is competitive and based on capacity. Factors considered include overall grade point average, performance in selected lower division courses and evidence of satisfactory and orderly progress through the prescribed curriculum. 

Upper-Division Status: A lower-division student may apply for progression to Upper-Division Status after completing CEH 200, 230, 240 and 250 with a grade of C or better in each course and an overall GPA of 2.5 or better.

Provisional Status: Students who have completed CEH 200, 230, 240, and 250 with an overall GPA of at least 2.1 may apply for provisional status. The granting of Provisional Upper-Division Status is based on the availability of space in the departmental programs after Upper-Division Status students have been accommodated. Provisional students are required to demonstrate the ability to perform satisfactorily in upper division courses by completing a total of seven departmental courses with a grade of C or better in each course (including the four required for Upper-Division Status). Permission to continue with upper-division classes depends on this minimum level of performance.

Any student with an overall GPA below 2.1 will not be admitted to upper division Chemical Engineering courses. Students who have not been admitted to Upper-Division or Provisional Status will be dropped from upper-division course rolls.

Transfer students at the upper-division level are admitted on a Provisional Status basis only.

GRADUATE STUDY PROGRAM

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

CIVIL AND ENVIRONMENTAL ENGINEERING

Professors:
G.D. Reed (Condra Professor and Head), Ph.D., P.E. Arkansas; R.M. Bennett, Ph.D., P.E., Illinois; E.G. Burdette (Fred N. Peebles Professor), Ph.D., P.E., Illinois; A. Chatterjee, Ph.D., P.E., North Carolina State; W.T. Davis, Ph.D., Tennessee; J.H. Deatherage, Ph.D., P.E., Tennessee; E.C. Drumm, Ph.D., P.E., Arizona; D.W. Goodpasture, Ph.D., P.E., Illinois; W.L. Grecco (Emeritus), Ph.D., Michigan State; K.W. Heathington (Emeritus), Ph.D., Northwestern; J.B. Humphreys, Ph.D., Texas A&M; W.A. Miller (Emeritus), Ph.D., P.E., Georgia Institute of Technology; R.B. Robinson (Fisher Professor), Ph.D., P.E., Iowa State; J.L. Smoot, Ph.D., P.E., VPI & B.A. Tschantz (Condra Professor), ScD., P.E., New Mexico State; C.R. Walker (Emeritus) M.S. Massachusetts Institute of Technology; J. Wegmann, Ph.D., Northwestern.

Associate Professors:
K.C. Chou, Ph.D. Northwestern; C.D. Cox, Ph.D. Penn State; L.D. Han, Ph.D. California (Berkeley); M. Mauldon, Ph.D. California (Berkeley); T.L. Miller, Ph.D., Tennessee; S.H. Richards, Ph.D., P.E., Tennessee; K.G. Robinson, Ph.D. VPI; R.F. Tiry (Emeritus), B.S. Marquette.

Assistant Professor:
M. Jackson, Ph.D., P.E., Oregon State.

BACHELOR OF SCIENCE PROGRAM

The department offers a Bachelor of Science degree with a major in Civil Engineering, accredited by the Accreditation Board for Engineering and Technology (ABET).

UNDERGRADUATE EDUCATION MISSION

To prepare students to enter the general practice of Civil Engineering and/or pursue graduate education, the department’s undergraduate education mission is to provide a high-quality teaching and learning environment in recognized areas of civil engineering with proficiency in environmental, geotechnical, structural, transportation, and water resources engineering.

EDUCATIONAL OBJECTIVES

To ensure a high quality and stimulating learning environment, the department strives to do the following: attract highly-qualified and motivated students; provide a highly competent faculty, dedicated to undergraduate instruction; control class size to facilitate a high-quality learning environment; provide state-of-the-art teaching and laboratory equipment/facilities; and foster strong bonds of faculty-student interaction through seminars, extracurricular activities, personal advising and consultation.

To ensure that students have exposure to the practice of Civil Engineering, the department strives: to provide cooperative education and internships; to encourage professional society participation; to consult an external advisory board of practitioners to assist with the development of the curriculum; to provide a senior design project including meaningful engineering design experiences; to maintain national engineering accreditation; and to maintain a high passing rate on the first professional licensing examination.

The department strives to ensure graduates will compete favorably in the marketplace for opportunities in the practice of civil engineering and/or graduate education by: providing professional courses to achieve proficiency in the live areas listed in the mission statement; fostering an appreciation for professional development and life-long learning; providing an undergraduate education recognized for its excellence both statewide and nationally; and providing professional development opportunities consistent with current engineering practice.

The curriculum in Civil Engineering provides training in fundamental engineering sciences and in basic subjects in related fields. Technical electives are available in construction, environmental engineering, geotechnical, material, structures, transportation, or water resources.

Students are required to maintain a cumulative grade point of at least 2.00 in all Civil Engineering and Environmental Engineering courses taken at the University of Tennessee and used to satisfy the graduation requirements. No more than six hours of Civil and Environmental Engineering courses in which a D is the highest grade earned may be counted toward graduation.

ELECTIVES

Electives are chosen to meet student career objectives and program accreditation requirements. Students must consult with their advisor and have their selections pre-approved. A student must have a GPA of 2.75 or higher or approval of the instructor to take 500-level courses for undergraduate credit.

ENVIRONMENTAL ENGINEERING MINOR

The College of Engineering offers a minor in Environmental Engineering to those undergraduate students whose academic history provides the prerequisites for the courses required by the minor. The minor requires the completion of a minimum of 21 credits in course work which builds the foundation of an environmental engineering perspective. Some of the courses used in the minor may also satisfy a requirement for a major. Students are advised that the first professional degree in Environmental Engineering at the University of Tennessee is the M.S. in Environmental Engineering which builds on the minor.

COURSE REQUIREMENTS

Choose One:
CHEM 230 Inorganic Chemistry
CHEM 310 Analytical Chemistry
CHEM 350 Organic Chemistry

Required:
MCR 210 General Microbiology

Choose Two:
CHE 200 Chemical Engineering Fundamentals
Be 243 Material and Energy Flow in Bio Systems
CE 380 Water & Wastewater Treatment
CE 395 Hydrology or Be 315 Soil and Water Conservation

Choose One:
Geol 202 Earth as an Ecosystem
PHIL 346 Environmental Ethics

Choose One:
Geol 485 or CE 485 Hydrogeology
PSS 415 Soil Hydrology

Required:
CE 486 Air and Waste Management

Students are asked to file their intent to complete the Minor with the office of the Department of Civil and Environmental Engineering, 223 Perkins Hall. The student’s home department advisor will then be supplied with the information about the Minor requirements to assist with prerequisite sequencing. A copy will be filed with undergraduate records so the Minor, once completed, will be shown on the student’s transcript.

MASTER OF SCIENCE PROGRAM

Graduate programs in Civil Engineering and Environmental Engineering leading to the degrees of Master of Science are offered to graduates of recognized undergraduate curricula.

The general requirements for the masters’ degrees are stated in the Graduate Catalog.
DOCTORAL PROGRAM

Graduate work leading to the degree of Doctor of Philosophy with a major in Civil Engineering is offered. Major fields of study include environmental engineering, geotechnical/materials, structural engineering, transportation, and water resources.

The general requirements for the doctoral degree are stated in the Graduate Catalog.

ELECTRICAL AND COMPUTER ENGINEERING

Professors:
M.O. Pace (Acting Head), Ph.D. Georgia Institute of Technology; M. Abidi (Weston Fulton Professor), Ph.D. Tennessee; J.D. Birdwell, Ph.D. Massachusetts Institute of Technology; B.K. Bose (Condra Chair of Excellence), Ph.D. Calcutta; D.W. Boulding, Ph.D. Vanderbilty, P.E.; J.S. Lawler, Ph.D. Michigan State; A. Pujol (UTSI), Ph.D. Vanderbilty; M.J. Roberts, Ph.D. Tennessee; J.R. Roth (Weston Fulton Professor), Ph.D. Cornell.

Emeritus Professors:

Associate Professors:

Emeritus Associate Professors:

Assistant Professors:

BACHELOR OF SCIENCE PROGRAMS

GOALS

The goals of the B.S. degree programs in electrical and computer engineering are to: (a) prepare students for entry into the profession; (b) instill in students the capabilities required by the discipline, the recognition of the need to enhance the discipline, and the desire for life-long learning; and (c) equip students with a general knowledge of technical and non-technical disciplines so that they are prepared for further study in other fields including professional and graduate education.

The B.S. degree programs are based on a series of integrated courses. Students advance through the program in a sequential manner guided by prerequisite and co-requisite courses in the showcase curriculum. This integrated sequentially developed program is highlighted by the systematic inclusion of the design process introduced in the sophomore year.

PROGRAM EDUCATIONAL OBJECTIVES

The program educational objectives of the Electrical and Computer Engineering programs include: (1) an understanding of the engineering sciences necessary to analyze and design complex devices and systems containing hardware and software components; (2) an understanding of mathematics through differential and integral calculus and differential equations; (3) an understanding of probability and statistics, including applications; (4) an understanding of linear algebra, numerical analysis, and advanced calculus; (5) an understanding of the basic sciences including chemistry and physics; (6) a progression of design projects and tasks throughout the program; (7) an orderly student progression through the program; and (8) achievement of all eleven Program Outcomes common to all engineering disciplines and the two additional department specified outcomes. See Program Outcomes below.

PROGRAM OUTCOMES

In addition to the eleven program-outcomes listed in the College of Engineering section on National Accreditation (listed on page 104), electrical and computer engineering program outcomes also include (a) experience in using organizational skills in team management and negotiation; and (b) ability to use creative and technical skills in analytical problem solving in the discipline and other engineering related fields. Both Electrical and Computer Engineering programs are under continuous assessment and improvement based on Engineering Criteria 2000. The Advisory Committee to the department, which is made up of persons from industry, government, higher education, students and recent graduates, and faculty, provides constituent input for setting program educational objectives and outcomes and establishing the requisite assessment modes for the program.

GENERAL

The courses of study for the B.S. degree in Electrical Engineering and B.S. degree in Computer Engineering are designed to provide a foundation in both the basic sciences and the specialized areas of their respective discipline. The programs also have sufficient general education electives to enhance the cultural growth of the student and develop professionals with a strong social awareness. The faculty seeks to keep classes small enough to allow effective interaction with students.

The selection of general education elective courses is left to each student but must be made in accordance with established College of Engineering Policy. Students are required to satisfy the following distribution requirements: Engineering in a Global/Social Context cluster (1 course), Con-
GRA\-DUATE STUDY PROGRAM

Comprehensive course and research pro-\-grams for the degrees of Master of Science and Doctor of Philosophy in electrical engineer-\-ing are offered for students with career goals such as advanced design, research, and teach-\-ing. Students admitted to the graduate pro-\-gram are expected to have a minimum grade point average of 3.0 for all undergraduate \- study, and for the senior year. Students with a B.S. or B.A. degree in a field other than Electri-\-cal Engineering are required to take certain ECE undergraduate courses before beginning the graduate program. See the Graduate Catalog for complete details on the graduate program.

The ECE Department has a long-standing tradition of research excellence in analog and mixed-signal signal integrated circuits, computer vision, image processing, information processing, industrial plasma engineering, power electronics, and sensors. Various govern-\-ment agencies, laboratories, and industrial partners support research of the ECE faculty at a level of approximately $3.5M per year. The campus is located within the vicinity of the Oak Ridge National Laboratory (ORNL). The ECE Department sustains a strong link with ORNL in their efforts at advancing the nation’s energy resources, scientific knowledge, educational foundations, and economic competitiveness.

ENGINEERING PHYSICS

Lee L. Riedinger (Head) Stuart B. Elston, Coordinator

Engineering physicists typically work in areas of applied science and emerging technol-\-ogy in which standard engineering practices are rapidly evolving to keep pace with advances in science; they are often involved in developing new engineering methods and principles. The goal of the Engineering Physics B.S. program is to prepare its students to apply the principles and problem-solving approaches of physics to the solution of engineering problems at the forefronts between science and technology, by:

1. providing students with a thorough knowl-\-edge of mathematics, science, and engineering science with an emphasis on the principles of physics and of the derived physical, chemical, and biological sciences as appropriate to individual career goals;
2. training students in the communication, team cooperation, and problem identification and solving skills needed to practice engineer-\-ing art in the modern world;
3. preparing students through example and experience to apply those principles and skills to the design and conduct of experiments, to the analysis and interpretation of measured results, and to the design of components, processes, and systems that meet specific, identi-\-fied needs; and
4. instilling in students understanding and appreciation of the cultural, historical, societal, economic, and environmental contexts in which problems of engineering and science arise, and to provide training to seek solutions which achieve appropriate balance of cultural, social, and technical values.

The program 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 of the curriculum are concerned with fundamental courses in engineering, science, mathematics, and general education. In the upper division, the curriculum allows some choice of courses in engineering and in physics depending on the interest and career goals of the student. The undergraduate program is a complete, profes-\-sional 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.

ENVIRONMENTAL ENGINEERING

(See Civil Engineering)

INDUSTRIAL ENGINEERING

Professors: A.B. Badru (Head), Ph.D. Central Florida, P.E.; W.W. Claycombe (Emeritus), Ph.D. Virginia Polytechnic Institute, P.E.; G.W. Garrison (UTSI), Ph.D. North Carolina State; H.L. Loveless (Emeritus), M.S. North Carolina State, P.E.; J.A. Bontadelli (Emeritus), Ph.D. Ohio State, P.E.


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.

OUTCOMES

The eleven program outcomes listed in the College of Engineering section on National Accreditation are the accepted outcomes of the Industrial Engineering Department.

UNIVERSITY OF TENNESSEE GENERAL EDUCATION REQUIREMENTS

Industrial Engineering students are required to take Economics 201 and two English elec-\-tives. They must select the remainder of their humanities/social science elective courses to satisfy the University of Tennessee General Education Requirements in accordance with the established College of Engineering Policy. An Industrial Engineering advisor will assist the student in selecting courses to meet these requirements.

GRADUATE STUDY PROGRAMS

The Department of Industrial Engineering offers a graduate program leading to the Mas-\-ter of Science degree with a major in Industrial Engineering, concentrations in traditional industrial engineering, engineering manage-\-ment, manufacturing systems engineering, and product development and manufacturing. The Ph.D. with a major in Engineering Science is available through the Department of Engineer-\-ing Science and Mechanics with a specialization in Industrial Engineering.

Students who enroll in the Master of Science degree may select a concentration in either Industrial Engineering, Engineering Management, or Manufacturing Systems Engineering. In manufacturing, a dual degree program leading to an MBA and MSIE is available. Admission is open to graduates of Abet—accredited undergraduate curricula in engineering, or to graduates of other technical curricula who satisfy prerequisites depending
on their academic backgrounds and industrial experiences. Policies concerning prerequisite requirements will be determined by the Industrial Engineering faculty.

NOTE: Any 400-level course required in the Bachelor of Science in Industrial Engineering program at UT may not be used for graduate credit in the M.S. degree program.

INDUSTRIAL ENGINEERING AND MANUFACTURING SYSTEMS ENGINEERING

Under the Industrial Engineering and Manufacturing Systems Engineering Concentration, students may select either the thesis or non-thesis option. The thesis option requires 24 hours of coursework and 6 hours thesis. The non-thesis option requires 30 hours of course work plus a 3-hour industrial design project.

Depending upon a student’s background and career objectives, graduate work in Industrial Engineering enables the student to select an area of specialization from operations research, human factors engineering, quality engineering, manufacturing systems and reliability engineering, or general industrial engineering. In addition to the concentration in manufacturing systems engineering, a dual degree program, requiring a total of 67 semester hours of coursework, is available in manufacturing, and leads to an MBA and an MS degree.

It is also possible in either concentration for a student to select minors in engineering, mathematics, psychology, business, computer science, statistics, or economics.

ENGINEERING MANAGEMENT

The Engineering Management Concentration has an additional admission requirement of two years’ industrial experience as a practicing engineer or scientist, or current full-time employment in an appropriate engineering or scientist, or current full-time employment in an appropriate engineering or scientist position. The program is non-thesis and requires 33 hours of coursework plus a 3-hour capstone project.

BACHELOR OF SCIENCE PROGRAM

Materials Science and Engineering is concerned with the science and technology needed to develop and apply materials for the benefit of society. The undergraduate program is designed to prepare students to undertake materials science and engineering careers or to enter graduate programs in this or related disciplines. In order to accomplish this overall goal, the specific educational objectives of the program for the degree of B.S. in Materials Science and Engineering are:

1. To provide students with a knowledge of the fundamentals of appropriate physical and chemical sciences, mathematics, and engineering sciences, and to demonstrate the applications of these principles to solve engineering problems with an emphasis on the materials processing, structure, properties, and performance. This knowledge base includes the development of analytical and experimental skills.
2. To provide students with experiences in design and materials selection such that they can design components, systems, or processes with consideration of economic, safety, environmental, and social issues.
3. To develop professional skills in such areas as written and oral communication, problem-solving, and working in diverse teams that prepare graduates to practice materials engineering in contemporary and global environments.
4. To provide students with a general education component that complements the technical content, for the appreciation of cultural and social values, for understanding the impact of engineering solutions on society, and for professional development.

The field of Materials Science and Engineering is quite broad, encompassing metallic, ceramic, and polymeric materials, as well as composites made from combinations of materials. Consequently, the curriculum contains a central core of courses that are applicable to all materials types with flexibility in the upper division years to permit concentration and in-depth coverage of specific materials categories. By judicious choice of electives the student may get a broad perspective or may develop a specialty area.

A minimum of 18 semester-hours of general education courses are required by all engineering degree programs in order to meet the UT general education goals, as discussed above. The major in Materials Science and Engineering specifically requires that Economics 201 and one course from the Effective Communication Cluster be included as a part of this group. Graduation in materials science and engineering requires a minimum grade point average of 2.00 for all departmental courses.

PROGRESSION TO UPPER-DIVISION PROGRAMS

Progression of students to departmental Upper-Division courses is competitive. Factors considered include overall grade point average, performance in selected lower-division courses and evidence of satisfactory and orderly progress through the prescribed curriculum.

Upper-Division Status

A Lower-Division student formally applies for Upper-Division Status after completing 50 semester hours of Lower-Division engineering curriculum course work with an overall GPA of at least 2.4. This must include Materials Science and Engineering 201.

Provisional Status

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

Transfer Students

At the Upper-Division level students are admitted on a Provisional Status basis only. Any student presenting more than 28 hours of Lower-Division engineering curriculum course work by transfer credit is considered to be a transfer student.

MINOR IN MATERIALS SCIENCE AND ENGINEERING

A minor in Materials Science and Engineering (MSE) is offered through the College of Engineering to those undergraduate students who have met the prerequisites for the courses required by the minor. The minor requires completion of a minimum of 18 semester hours in course work which develops a foundation in MSE and allows concentration in MSE areas to be selected by the students (e.g., metallurgy, polymers, ceramics, composites, or electronic materials). Some of the courses used for the MSE minor may also satisfy requirements for the student’s major.

Students may enroll in the minor program by completing a form at the office of the Department of Materials Science and Engineering, 434 Dougherty Engineering Building. A copy of the completed enrollment form and information on the minor requirements will be forwarded to the student’s home department advisor. A copy of the form also will be filed with the Office of Records and Certification so that, upon completion, the minor will be shown on the student’s transcript.

COURSE REQUIREMENTS

Required courses:

- Materials Science and Engineering 201 and 380.

Choose at least one:

- Materials Science and Engineering 410, 402, 340, 360, and 472.

Choose at least three, at least one of which must be at the 400 level:

- Any of the Materials Science and Engineering 300-400 courses;
- Civil and Environmental Engineering 321 and 421;
- Chemical Engineering 330 and 447;
- Industrial Engineering 330;
- Mechanical Engineering 366 and 466;
- Engineering Science 321, 322, 323, 423, 426, and 473;

MATERIALS SCIENCE AND ENGINEERING

Professors:

Patrick R. Taylor (Head), Ph.D. Colorado School of Mines, P.E.; R.S. Benson, Ph.D. Florida State; C.R. Brooks (Emeritus), Ph.D. Tennesse; Raymond A. Buchanan, Ph.D. Vanderbilt, P.E.; Edward S. Clark (Emeritus), Ph.D. California; N.B. Dahorte (UTSI), Ph.D. Michigan State; J.F. Fellers, Ph.D. Akron; Marion G. Hansen, Ph.D. Wisconsin; P.K. Liaw (Rachell Chair of Excellence), Ph.D. Northwestern; Douglas H. Lowndes, Ph.D. Colorado; Carl D. Lunden, Ph.D. Rensselaer; Carl J. McGargue, Ph.D. Kentucky; Ben F. Oliver (Emeritus), Ph.D. Penn State; A.J. Pedraza, Ph.D. LaPlata (Argentina); George M. Pharr, Ph.D. Stanford, P.E.; J. Phillips, Ph.D. Liverpool (UK); Joseph E. Spruiell, Ph.D. Tennessee; E.E. Stansbury (Emeritus), Ph.D. Cincinnati.

Associate Professors:

William T. Becker, Ph.D. Illinois; Thomas T. Meek, Ph.D. Ohio State.

Assistant Professor:

Kevin Kilt, Ph.D. Delaware.
Associate Professor (Emeritus):
S.E. Becker, Ph.D. North Carolina State, P.E.

Assistant Professors:
R.L. Kress, Ph.D. Arizona, Ph.D.; M. Zheng, Ph.D. University of Calgary (Canada).

GENERAL
The department offers a B.S. in Mechanical Engineering, Aerospace Engineering, and Biomedical Engineering. At the graduate level the M.S. and Ph.D. degrees are offered in Mechanical Engineering, Aerospace Engineering, and Engineering Science. The mission of the department is to provide a broad base integration of courses and experiences that prepare graduates to practice their profession successfully, to apply their skills to solve current engineering problems collaboratively, and to help advance the knowledge and engineering practice in their fields. Further information can be found on the department’s web site: http://www.engr.utk.edu/maes/

BACHELOR OF SCIENCE PROGRAMS
Mechanical Engineering has two main stems: (1) thermal/flows science and (2) machine science. Historically, both are derived from the sciences associated with the generation of mechanical power and the transmission of this power through various machine elements. Today, fundamental concepts are applied to various power units such as steam turbines, gas turbines, and internal combustion engines. 

Mechanical Engineering is a versatile and broadly based engineering discipline. The foundation is in the basic sciences and requires an understanding of such subject areas as solid and fluid mechanics, thermodynamics, heat transfer, structures, vibrations, mechanical design, manufacturing processes, and instrumentation. Design projects throughout the program develop student skills in handling open-ended problems. Because of the broad scientific foundation and design training in this program, graduates are found in nearly every industry and at different levels of research, design, and management.

The educational objectives of the Mechanical Engineering program are:
• To educate students thoroughly in methods of analysis, including mathematical and computational skills appropriate for application to engineering problems;
• To develop the skills pertinent to the design process, including skills needed for formulation of problems, analysis, synthesis, and skills pertinent to effective communication and collaborative work;
• To teach students to use modern experimental and data analysis techniques for engineering application; and
• To prepare students for lifelong learning, nourish creative talents, and provide understanding of professional and ethical responsibilities.

Aerospace Engineering uses the basic sciences and mathematics to develop the foundation for the design, development, production, testing, and applied research associated with aerospace vehicles. These vehicles include aircraft, spacecraft, and missiles. Auxiliary and propulsion systems are also an integral part of this education. These include guidance, control, environmental, ramjet, rocket, turbojet, and piston engine systems. Emphasis in the senior year is directed toward these topics, and the program culminates in a major aerospace design project.

An agreement among southern states for sharing academic programs allows legal residents of some states to enroll in certain programs at UT (Knoxville campus) on an in-state tuition basis. The undergraduate program in Aerospace Engineering is available on an in-state basis to students from Arkansas, Kentucky, Louisiana, and South Carolina.

A coursework program leading to a minor in Aerospace Engineering for students in other engineering degree programs is also offered. The educational objectives of the Aerospace Engineering program are:
• To provide students with a comprehensive education that includes in-depth instruction in aerodynamics, structures, flight mechanics, orbital mechanics, flight propulsion, and the design of aerospace systems;
• To prepare students for professional careers in Aerospace Engineering by developing the skills pertinent to problem solving, analysis, design, and those personal skills required for teamwork and effective communication;
• To provide adequate opportunities to develop and cultivate lifelong learning skills, individual professionalism and ethics, and to nourish creative talents.

The Biomedical Engineering degree curriculum integrates selected engineering sciences and design methods with life science for course work. The program prepares students for careers in a variety of health care related professions including work for medical device manufacturers and regulatory governmental agencies. The course content of the biomedical engineering curriculum complements the departmental strengths in mechanical engineering and includes a comprehensive coverage of engineering materials and biomechanics applications. Effective courses are available to allow students to specialize their curriculum to areas of particular current interest in the medical device industry including a thorough understanding of all aspects of the medical device industry. An agreement among southern states for collaborative work among medical device professionals including a thorough understanding of all aspects of the medical device industry. An agreement among southern states for collaborative work among medical device professionals including a thorough understanding of all aspects of the medical device industry. An agreement among southern states for collaborative work among medical device professionals including a thorough understanding of all aspects of the medical device industry. An agreement among southern states for collaborative work among medical device professionals including a thorough understanding of all aspects of the medical device industry.
ACADEMIC COMMON MARKET

An agreement among state for sharing academic programs allows legal residents of some states to enroll in certain programs at UT (Knoxville campus) on an in-state tuition basis. Aerospace Engineering is available on an in-state basis to students from Arkansas, Kentucky, Louisiana, and South Carolina. Biomedical Engineering is available on an in-state basis to students from Alabama, Arkansas, Kentucky, Maryland, Mississippi, South Carolina, and West Virginia.

PROGRESSION TOWARD GRADUATION

The freshman year curriculum is common to all engineering majors. The sophomore curriculum is nearly identical for all students in the department. The first two years are considered to be lower division and the two remaining years upper division. Upon completion of the lower division courses the student must apply for progression to the upper division in order to continue in the department. Students allowed to progress may be awarded Full Status or Provisional Status. Factors considered include overall grade point average, performance in lower division engineering and math courses, and evidence of orderly progression through the lower division curriculum.

Full Status

A Lower Division student may apply for progression to Upper Division after completing 47 semester hours of Lower Division engineering curriculum course work with an overall GPA of at least 2.4.

Provisional Status

Students who have completed 47 semester hours of Lower Division engineering curriculum course work with an overall GPA between 2.0 and 2.4 may apply for Provisional Status. The granting of Provisional Status is based on the availability of space in departmental programs after Full Status students have been accommodated. Provisional Status students are required to demonstrate their ability to perform satisfactorily in Upper Division by attaining a minimum GPA of 2.0 in the first 12 semester hours of 300 level required engineering courses. Award of Upper Division Full Status is dependent upon this performance.

Students with an overall GPA less than 2.0 in 47 hours of Lower Division engineering curriculum course work will not be admitted to Upper Division. Students who have not progressed to Upper Division will be dropped from departmental class rolls.

Transfer Students

Students transferring more than 26 hours from another institution are considered Transfer Students. Students transferring 47 hours or more will be admitted to Upper Division, if eligible, with Provisional Status.

Loss of Full Status

Full Status students are expected to maintain a general GPA of 2.0 and a GPA of 2.0 in departmental courses. Failure to maintain these levels of performance will result in a review of the student’s progress and possible loss of Full Status.

Graduation Requirements

A minimum cumulative GPA of 2.0 in all departmental courses taken at UT is required for graduation. This is in addition to the University’s graduation requirements.

GRADUATE STUDY PROGRAMS

Graduate programs leading to the degrees of Master of Science and Doctor of Philosophy with a major in Mechanical Engineering or Aerospace Engineering are available to graduates of other curricula who satisfy the necessary prerequisite courses. The general requirements for advanced degrees are summarized in the Graduate Catalog.

Graduate programs leading to the degrees of Master of Sciences and Doctor of Philosophy with a major in Engineering Science are available to graduates of recognized curricula in engineering. Graduates of recognized curricula in mathematics, computer science or one of the physical or biological sciences may also qualify for admission depending upon their background. Each applicant is advised as to any prerequisite courses needed to enter a program. Program options include solid and fluid mechanics (with emphasis toward computational techniques), biomedical engineering, artificial intelligence applications, composite materials and fracture mechanics. Interdisciplinary programs are arranged to meet individual needs or interests. 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.

NUCLEAR ENGINEERING

Professors: H.L. Dodds (Head), Ph.D. Tennessee, P.E.; J.T. Mihalco (Part-time), Ph.D. Tennessee; L.F. Miller, Ph.D. Texas A&M, P.E.; R.E. Uhrig (Distinguished Professor) Ph.D. Iowa State, P.E.; B.R. Upadhyaya, Ph.D. California, P.E.

Professors (Emeritus): T.W. Kerlin, Ph.D. Tennessee; R.E. Perez, Ph.D. Madrid; P.N. Stevens, Ph.D. Northwestern, P.E.


Associate Professors: P.O. Groer, Ph.D. Vienna (Austria); J.W. Hines, Ph.D. Ohio State; R.E. Pevey, Ph.D., Tennessee, P.E.; T.H. Scott, Ph.D. Florida, P.E.; A.E. Ruggles, Ph.D. Rensselaer; L.W. Townsend, Ph.D. Idaho.

GENERAL

Nuclear Engineering is the engineering discipline that deals with the application of nuclear and atomic processes for the benefit of mankind. Radiological Engineering is a specialty of Nuclear Engineering that focuses on biological applications. Some examples of Nuclear and Radiological Engineering are production of electric power with essentially no air pollution, production of radiotopes for medical and industrial uses, and development of radiation based methods for the diagnosis and treatment of cancer.

The mission of the Nuclear Engineering Department is to:

1. Produce high quality nuclear and radiological engineering graduates from undergraduate through the doctoral level in order to help meet the manpower needs of our state, region, nation, and the international community.
2. Conduct nuclear and radiological engineering related research to help meet the needs of society.
3. Perform service for industry, government, professional organizations, and the public in areas related to nuclear and radiological engineering.

Additional information about the Department and its programs is available on the Department’s web site at www.engr.utk.edu/nuclear.

BACHELOR OF SCIENCE PROGRAM

The program for the B.S. degree in Nuclear Engineering is nationally accredited by the Accreditation Board for Engineering and Technology (ABET) which is described earlier in this catalog. The educational objectives of the B.S. program are to:

1. Provide students with fundamental knowledge in mathematics, computer science, the basic sciences, and the engineering sciences that is necessary to solve state-of-the-art problems in nuclear and radiological engineering.
2. Provide students with a real-world design and analysis experience in nuclear and radiological engineering that shall include environmental, societal, safety, and economic considerations.
3. Provide students with appropriate skills in oral and written communication, teamwork, laboratory work, problem solving and the use of modern engineering tools that will prepare them to work productively in a contemporary and global environment.
4. Provide students with a diverse general education in the humanities, ethics, and social sciences to complement their technological education in order to understand and appreciate the importance of each in society and in personal development.
5. Foster a genuine desire for life-long learning in students.

Students majoring in Nuclear Engineering take courses in the basic sciences, engineering fundamentals, mathematics, computer science, humanities, and special areas of nuclear engineering including fission system design and safety; radiation transport and shielding; heat transfer and fluid flow; instrumentation and controls; fuel cycle and waste management; and health physics. Nuclear Engineering students may concentrate in Radiological Engineering by substitution of three courses. The Radiological Engineering concentration also satisfies most of the requirements of the Nuclear Engineering major.

MASTER OF SCIENCE PROGRAM

A graduate program leading to a degree of Master Science is available to graduates of recognized undergraduate curricula in engineering, physics, chemistry, or mathematics. Each applicant will be advised as to the necessary prerequisite courses before entering the program. The general requirements of the master’s degree are summarized in the Graduate Catalog.
AEROSPACE ENGINEERING  

Sophomore  
Mathematics 231, 241 ............................................... 7  
Mathematics 200 ..................................................... 1  
Physics 231, 232 .................................................... 7  
Engineering Science 231, 321 ................................... 6  
Materials Science and Engineering 201 ......................... 3  
Mechanical Engineering 331 ....................................... 3  
Economics 201 ...................................................... 4  

Total: 135 hours

1General Education Elective .................................... 3  
2Junior  
Mechanical Engineering 332, 363, 391 ........................... 9  
Aerospace Engineering 345, 351, 363, 370 ....................... 12  
Electrical and Computer Engineering 301, 302 ..................... 6  
Engineering Science 341 ........................................... 3  
3General Education Electives ..................................... 6  
Senior  
Mechanical Engineering 344, 451, 402 ............................ 7  
Aerospace Engineering 426, 429 .................................... 6  
Aerospace Engineering 422, 424, 425 ............................ 9  
Aerospace Engineering 431, 449 .................................... 4  
4General Education Electives ..................................... 5  

Total: 135 hours

1General Education Electives: minimum of 14 hours required. (See College of Engineering General Requirements.)

BIOMEDICAL ENGINEERING  

Sophomore  
Physics 231, 232 .................................................... 7  
Math 241, 231, 200 ................................................... 8  
Engineering Science 231, 321 ................................... 6  
Biomedical Engineering 271 ......................................... 3  
Biology 130, 140 .................................................... 3  
Materials Science and Engineering 201 ......................... 3  

Junior  
Technical Electives ................................................... 6  
Electrical and Computer Engineering 301 ......................... 3  
Engineering Science 341 ........................................... 3  
Biomedical Engineering 300 ......................................... 3  
Materials Science and Engineering 474 ............................ 3  
Economics 201 ...................................................... 4  
Mechanical Engineering 331 ....................................... 3  
Biomedical Engineering 301, 310, 346 ............................ 7  
Philosophy 345 ...................................................... 3  

Senior  
Biomedical Engineering 455, 430, 431 ............................ 6  
Engineering Electives ............................................... 6  
General Education Elective ........................................... 3  
Mechanical Engineering 402 ......................................... 3  
Biomedical Engineering 469 ......................................... 4  
Biomedical Engineering Elective .................................... 3  
General Education Electives ........................................... 8  

Total: 135 hours

1See College list of approved courses. All electives must be pre-approved by the advisor and department head.

CHEMICAL ENGINEERING  

Sophomore  
Chemical Engineering 200, 230, 240, 250 ...................... 14  
Chemistry 310-319 ................................................... 4  
Materials Science and Engineering 201 ......................... 3  
Mathematics 200, 231, 241 ........................................ 8  
General Education Electives ........................................... 6  

Junior  
Chemical Engineering 301, 310, 340, 360, 380 ..................... 14  
Physics 231 ...................................................... 3  
Chemistry Option ................................................... 3  
Chemistry 350 ....................................................... 3  
Chemistry 320, 360, or 483 ........................................... 3  
General Education Elective ........................................... 3  
Technical Writing Elective ........................................... 3  

Total: 129 hours

1At least one General Education course must be from the Professional and Ethical Responsibility cluster.  
2The two computer engineering junior electives are chosen from Electrical and Computer Engineering 301, 313, 332, 341, and 342.

CIVIL ENGINEERING  

Sophomore  
Mathematics 231, 241, 251 .......................................... 10  
Physics 231 ...................................................... 3  
Statistics 251 ...................................................... 3  
Nuclear Engineering 200 ........................................... 3  
Civil Engineering 205, 210, 261 ..................................... 9  
General Education Electives ........................................... 6  

Junior  
Civil Engineering 321, 351, 361, 390 .............................. 13  
Civil Engineering 305, 330, 352, 380, 395 ........................... 14  
General Education Electives ........................................... 6  

Senior  
Civil Engineering 435, 442, 471, 480 ............................. 12  
Civil Engineering 400, 401, 440 ..................................... 7  
Civil Engineering Elective ........................................... 3  
Technical Electives ................................................... 6  
General Education Electives ........................................... 6  

Total: 135 hours

1See College list of approved courses. All electives must be pre-approved by the advisor and department head.

COMPUTER ENGINEERING  

Sophomore  
Mathematics 231, 251 ............................................. 6  
Physics 231 ...................................................... 3  
Computer Science 102 ............................................. 4  
Electrical and Computer Engineering 201 ......................... 3  
Electrical and Computer Engineering 202, 251 ..................... 7  
Computer Science 140 ............................................. 4  
Mathematics 241 ................................................... 4  
General Education Elective ........................................... 3  

Junior  
Electrical and Computer Engineering 310, 311, 331 .............. 9  
Computer Science 302 ............................................. 3  
Mathematics 300 ................................................... 3  
Computer Engineering Junior Electives ............................. 6  
Electrical and Computer Engineering 351 ......................... 3  
Computer Science 360 ............................................. 3  
General Education Elective ........................................... 3  

Senior  
Electrical and Computer Engineering 451 ......................... 3  
Computer Science 370 ............................................. 3  
General Education Electives ........................................... 3  
Computer Engineering Senior Electives ............................. 9  
Electrical and Computer Engineering 452 ......................... 4  

Total: 129 hours

1At least one General Education course must be from the Professional and Ethical Responsibility cluster.  
2The two computer engineering senior electives must be selected from Electrical and Computer Engineering 411, 412, 421, 422, 431, 432, 441, 442, 446, 461, 472, 481, 482, 491, Computer Science 420, 430, 460, 470, 494; Industrial Engineering 405; and English 360. If a student takes one or more computer engineering senior electives that are 4-5 semester hours, then the total hours taken would increase to over 129. The extra hours beyond the degree requirement may not be used to reduce General Education elective hours.

1See College list of approved courses. All electives must be pre-approved by the advisor and department head.

DOCTORAL PROGRAM

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

ACADEMIC COMMON MARKET

An agreement among states for sharing academic programs allows legal residents of some states to enroll in certain programs at UT (Knoxville campus) on an in-state tuition basis. The undergraduate program in Nuclear Engineering is available on an in-state basis to students from Alabama, Arkansas, Delaware, Kentucky, Louisiana, Mississippi, South Carolina, Virginia and West Virginia.

CURRICULA

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

Prerequisites

Before registering for any engineering course, a student should make certain that any necessary background work has been completed. In addition to specific prerequisites listed, it is assumed that a student taking sophomore engineering courses has completed all freshman courses, whether specifically listed as a prerequisite or not. When this is not the case, a student should seek advice from the advisor or department responsible for the course in question before registration so as to minimize the chances of academic difficulty. Students who do not have prescribed prerequisites may be dropped from a course at any time during a semester when the lack of prerequisites is discovered.

FRESHMAN YEAR

The following freshman year curriculum is common to all engineering programs except Engineering Physics. (Engineering Physics students should see the curriculum that follows.)

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 101, 102</td>
<td>6</td>
</tr>
<tr>
<td>Chemistry 120, 130</td>
<td>6</td>
</tr>
<tr>
<td>Mathematics 141, 142</td>
<td>8</td>
</tr>
<tr>
<td>Engineering Fundamentals 101, 102</td>
<td>12</td>
</tr>
<tr>
<td>Total: 34 hours</td>
<td></td>
</tr>
</tbody>
</table>

Total: 135 hours

1General Education Elective: minimum of 14 hours required. (See College of Engineering General Requirements.)

1See College list of approved courses. All electives must be pre-approved by the advisor and department head.

1General Education Elective: minimum of 14 hours required. (See College of Engineering General Requirements.)
ELECTRICAL ENGINEERING

Hours Credit

Sophomore
Electrical and Computer Engineering 201, 205 .... 6
Mathematics 231 ........................................... 3
Mathematics and Statistics 319 ................. 3
Physics 231 ............................................... 3
Electrical and Computer Engineering 202, 251 .... 7
General Education Elective ................................. 3
Mathematics 341 ........................................... 3
Physics 232 ............................................... 4
Junior
Electrical and Computer Engineering 310, 311.... 12
331, 341, 351 ............................................. 15
General Education Elective .................................... 3
Electrical and Computer Engineering 312, 321,... 12
332, 342, 395 ............................................. 13
General Education Elective ................................. 3
Senior
Electrical and Computer Engineering 400 .......... 5
Electrical Engineering Senior Electives .......... 13
General Education Electives ............................... 9
Mechanical Engineering 331 ......................... 3
Nuclear Engineering 342, Engineering Science 231... 10
Mathematics and Science Engineering 410 ....... 3

Total: 134 hours

1At least one General Education course must be from the Professional and Ethical Responsibility cluster.
2The electrical engineering senior elective must meet the depth and breadth requirements. The depth requirement is met by taking two courses in one of the core areas: systems (ECE 411, 412), power (ECE 421, 422), electronics (ECE 431, 432), communications (ECE 441, 442), and computers (ECE 451, 452). The breadth requirement is met by taking courses in other core areas, or courses in computer vision, power electronics, and emerging technologies. Electives are approved by the student’s faculty advisor.

ENGINEERING PHYSICS

Hours Credit

Freshman
English 101, 102 ............................................. 6
Mathematics 141, 142 .................................... 8
Engineering Fundamentals 101, 102 ............. 12
Physics 137, 138 ............................................. 10
Sophomore
Mathematics 231, 241 .................................. 7
Computer Science 102 .................................. 4
Chemistry 120, 130 ....................................... 8
Physics 240, 321 ............................................ 6
General Education Electives ............................. 9
Junior
Physics 311, 312 .......................................... 6
Physics 361, 461 .......................................... 6
Physics 421 .................................................. 4
Engineering/Technical Electives .................... 9
General Education Electives ............................. 9
Senior
Physics 411, 412 .......................................... 6
Physics 431, 432 .......................................... 6
Engineering/Technical Electives .................... 12
Electives .................................................... 6

Total: 134 hours

INDUSTRIAL ENGINEERING

Hours Credit

Sophomore
English Electives ........................................ 6
Math 200, 231, 241 ..................................... 6
Physics 231 ............................................ 3
Engineering Science 231 ............................. 3
Industrial Engineering 202 ............................. 3
Accounting 201 .......................................... 3
Statistics 251 ............................................ 3
Materials Science and Engineering 201 ......... 3
Junior
Electrical and Computer Engineering 301 ....... 3
Industrial Engineering 300, 301, 304, 310 ...... 7
Economics 201 .......................................... 4
Nuclear Engineering 203 ................................ 3
Nuclear Engineering 342 ................................ 3
General Education Elective ............................... 3
Senior
Industrial Engineering 308, 401, 402, 403 ... 14
Industrial Engineering 405, 421, 422, 440 .... 12
Technical Elective ........................................ 3
General Education Electives ............................. 6

Total: 132 hours

MATERIALS SCIENCE AND ENGINEERING

Hours Credit

Sophomore
Materials Science and Engineering 201, 290, 291 4
Physics 231, 232 ........................................... 4
Mathematics 200, 231, 241 ............................ 8
Chemical Engineering 200, 240 ...................... 8
General Education Electives ............................. 6
Junior
Materials Science and Engineering 290, 291 2
380, 402, 405, 410, 421, 489 .......................... 20
Materials Science and Engineering Elective ........ 3
Technical Elective ......................................... 3
General Education Electives ............................. 6

Total: 133 hours

1General Education courses must include Economics 201 and one course from the Effective Communications Cluster in addition to the requirements described under Approved General Education Electives.
2MSE electives: 422, 429, 443, 444, 470, 472, 474, 475, 494, 495, 496
3Students must enroll in 290 and 291 every year beginning with the sophomore year.

MECHANICAL ENGINEERING

Hours Credit

Sophomore
Mathematics 241, 231, 200 ............................ 8
Physics 231, 232 .......................................... 7
Engineering Science 231, 321 ........................ 6
Materials Science and Engineering 201 ......... 5
Mechanical Engineering 331 ............................ 3
Economics 201 .......................................... 4
General Education Electives ............................. 2
Junior
Mechanical Engineering 391, 344, 363, 366, 345, 332, 365 21
Electrical and Computer Engineering 301, 302 .... 6
Engineering Science 341 ................................ 3
General Education Electives ............................. 6

Total: 132 hours

1General Education Electives must include one course from the Communications Cluster and one course from the Professional and Ethical Responsibility Cluster. Of the remaining courses, the remaining two must be approved by the department.
2Technical Elective electives are selected from upper division mathematics and engineering courses and must be pre-approved by the department.

NUCLEAR ENGINEERING: RADIATIONAL ENGINEERING CONCENTRATION

Hours Credit

Sophomore
Mathematics 200, 231, 241 ............................ 8
Physics 231, 232 .......................................... 7
Nuclear Engineering 200, 203 .......................... 4
Electrical Engineering 301 ................................ 3
Computer Science 102 .................................. 4
General Education Electives ............................. 9
Junior
Physics 341 ............................................... 3
Nuclear Engineering 301, 304, 342, 351, 360, 431, 470 ............................................. 21
Materials Science and Engineering 201 ......... 3
General Education Electives ............................. 3
Senior
Industrial Engineering 405 ............................ 3
Mechanical Engineering 402 .......................... 1
Nuclear Engineering 400, 403, 404, 406, 472 .... 14
Chemical Engineering 251, BOMD 310, or Chemistry 250 .......................... 3
Technical Elective ....................................... 3
General Education Electives ............................. 6

Total: 129 hours

1General Education Electives must include one course from the Communications Cluster and one course from the Professional and Ethical Responsibility Cluster. Of the remaining courses, the remaining two must be approved by the department.
2Technical Elective electives are selected from upper division mathematics and engineering courses and must be pre-approved by the department.

College of Engineering 117

Senior
Mechanical Engineering 402, 451, 466, 475, 449, 431 ............................................. 14
Mechanical Engineering 451 and 469 or 456 and 479 ............................................. 6
Technical Elective ....................................... 3
Technical Elective (to be selected from ES 452, AE 351, IE 300) ................................ 3
General Education Electives ............................. 6
The College of Human Ecology helps students bring together information from the social and natural sciences to address issues faced by individuals, families, and communities through the lifespan. Human Ecology is the interactive relationship between human beings and their environment, whether that environment is the home, workplace, community, or leisure activity. While studying in any of the specialized program areas, students use an interdisciplinary approach to help people function effectively by integrating sensitivity for human needs with technical skills. In this way students are well prepared to enter the professional career areas with the knowledge and skills pertinent to some of the most relevant human problems in today’s society. The College is accredited by The American Association of Family and Consumer Sciences; the Teacher Education programs are NCATE approved; the dietetics program is approved by the American Dietetic Association; the Recreation and Tourism Management program is approved by the National Recreation and Park Association/American Association for Leisure and Recreation.

All departments of the College conduct basic and applied research much of which is supported by grants, contracts, or by the Agricultural Experiment Station. The diverse instructional and research facilities feature state-of-the-art equipment: closed-circuit television for observing children in Child Development Labs; an accredited small animal laboratory and cell and molecular biology facilities for nutrition research; a quantity foods demonstration facility for hotel and restaurant administration; the only non-woven textile processing laboratory with melt-blown and spun-bonding lines on a college campus in the world, and a newly renovated microcomputer laboratory.

Eighty-five full-time faculty staff five departments in Child and Family Studies; Health and Safety Sciences; Human Resource Development; Nutrition; and Consumer and Industry Services Management.

UNDERGRADUATE STUDY IN HUMAN ECOLOGY
Curricula in the following majors lead to a Bachelor of Science degree in Human Ecology:
- Child Development
- Community Health Education
- Family Studies
- Human Resource Development
- Nutrition
- Recreation and Tourism Management

The curricula in the following majors lead to a Bachelor of Science in Service Management:
- Hotel and Restaurant Administration
- Retail and Consumer Sciences

COLLEGE POLICIES
Degree requirements for all majors within the College of Human Ecology:
1. Comply with all University degree requirements as stated under “Academic Policies” in the Undergraduate Catalog.
2. Meet all requirements specified by the major.
3. Complete at least 48 credit hours in courses numbered 300 or above.
4. Earn a minimum grade of C in all major-prefix courses. Individual majors may require a C or above in additional specified courses. See curriculum and progression information for details.

All students in the College take Child and Family Studies 220—Marriage and the Family: Roles and Relationships or Retail and Consumer Sciences 341—Family and Consumer Behavior; and Human Ecology 410—Human Ecological Systems. These courses help students understand the nature of the profession and its role in serving individuals and families in the environments in which they live and to integrate this knowledge into their areas of specialization.

TRANSFER STUDENTS
Freshmen students (those who have completed fewer than 30 hours) may enter the College of Human Ecology if their cumulative grade point average is at least a 2.3. See “Progression Requirements” for details about specific major requirements.

MAXIMUM COURSE LOADS
Course loads over 19 hours must be approved by the Dean’s office prior to registration. The maximum course load in Summer Term is 12 hours. Overloads in any semester are normally not approved for a student whose grade point average is below a 3.0.

SATISFACTORY/NO CREDIT GRADING
The Satisfactory/No Credit grading option applies only to non-specified elective hours. No course that is part of the specified requirements of the student’s major can be taken under this option unless the course is only offered S/NC.

ADVISING
Students typically are assigned to a faculty advisor in the major after completing 30 hours of credit. New transfer students are advised initially by the college Advising Center and then are assigned faculty advisors. Students meet with academic advisors each semester. These conferences are designed to help students achieve academic success by identifying career choices, attaining a balance between general education and professional studies, and identifying problems and potential solutions early in the academic program.

SELECTION OF GENERAL EDUCATION ELECTIVES IN HUMAN ECOLOGY CURRICULA
Some curricula may specify particular courses to fulfill the University’s general education requirements. Unless specified by the major, the following courses will be acceptable.
- Natural Science Electives: Any two courses from those areas listed below: Astronomy, Biology, Botany, Chemistry, Geography, Geology or Physics.
- Social Science Electives: Courses chosen from Psychology, Sociology, Anthropology, Political Science, African American Studies, Medieval Studies, Women’s Studies, University Studies, or Economics.
For progression into Early Childhood Education for Teacher Licensure (Pre-K-4), students must meet the following criteria:

**STEP 1:**
1. Attain a cumulative GPA of at least 2.3/4.0 (transfer hours included) for admission to CFS 350.

**STEP 2:**
1. Complete at least 60 semester hours.
2. Attain a minimum grade of C in all required CFS courses and Education courses.
3. Earn a cumulative GPA of at least 2.7/4.0 (transfer hours included) for admission to Teacher Education.
4. Successfully complete an interview, which includes evaluation of written and oral communication skills, with the Early Childhood Education Review Panel or the Board of Admissions in the College of Education during the first methods course CFS 350. (See Admissions Requirements under College of Education.)

For progression into Student Teaching, students must meet the following criteria:

**STEP 3:**
1. Progress into the major.
2. Complete CFS 110, 211, 350, and 351.
3. Complete at least 90 hours (senior standing).
4. Complete an application to student teach (during CFS 350).
5. Attain a minimum of C in all required CFS courses and Education courses.
6. Earn and maintain a cumulative GPA of at least 2.7/4.0.
7. Attain successful participation experiences and satisfactory evaluations in CFA 350 and 351.

Note: Students are expected to exhibit written and oral communication skills appropriate to the program. If these skills are not exhibited, students may choose to participate in remedial activities through the University Hearing and Speech Center and/or the University’s Writing Center, or may be referred by a course instructor.

**COMMUNITY HEALTH EDUCATION**

For progression into Community Health Field Experience H483, students must meet the following criteria:

1. Earn a grade of C or better in Chemistry 100, 110; EEB 230, 240; Psychology 110, 210, and 430; all Health (H) and Public Health (PH); and Safety courses.
2. Attain a cumulative GPA of 2.3 for credit hours attempted at UT.
3. Complete an application/interview with the instructor prior to the end of the fifth week of the semester preceding the field experience.

**FAMILY STUDIES MAJOR**

For progression into the Family Studies major, students must meet the following criteria:

1. Complete at least 15 semester hours at UT, including CFS 205.
2. Attain a minimum grade of C in all required CFS and HE courses.
3. Attain and maintain a cumulative GPA of at least 2.3/4.0 (transfer hours included).
4. Successfully complete an interview, which includes evaluation of written and oral communication skills, with the Family Studies Review Panel during CFS 345 or CFS 360 or the Board of Admissions to Teacher Education in Home Economics.

For progression into the Family Studies Internship, students must meet the following criteria:

1. Progress into the major.
2. Complete courses in Family Studies Core.
3. Complete at least 90 hours (senior standing).
4. Complete an application to intern (during CFS 345 or CFS 360).
5. Complete CFS 405, HS 380, and one additional 3 hour course in the Interactional and Conflict Resolution Skills Pod.
6. Attain a minimum of C in all CFS required courses and HE courses.
7. Earn and maintain a GPA of 2.5/4.0.

**TEACHER EDUCATION LICENSURE PROGRAMS**

Early Childhood Education, Early Childhood Special Education, Family and Consumer Sciences, Business, Marketing, and Technology Teacher Education students must earn a 2.7 undergraduate cumulative GPA (including transfer work) and must otherwise meet teacher education requirements of the College of Education and apply to be admitted to Teacher Education (See College of Education).

**HOTEL AND RESTAURANT ADMINISTRATION MAJOR**

**RETAIL AND CONSUMER SCIENCES MAJOR**

Students should apply for progression into their chosen majors after completing Retail and Consumer Sciences 210, Hotel and Restaurant Administration 210 or Hotel and Restaurant Administration 211 and prior to entering Retail or Consumer Sciences/Hotel and Restaurant Administration 390. Applications for progression are available in the department office.

For progression into each major, students must meet the following criteria:

1. Cumulative grade point average 2.3 or greater for at least 30 semester hours.
2. Grade of C or better in all Retail and Consumer Sciences and/or Hotel and Restaurant Administration prefix courses, English 101, 102, Math 119 or 123, 125.
3. Complete 300 post-secondary school hours of industry related work for the chosen major. A list of appropriate work experiences is available in the department office.
4. For graduation, students must earn a grade of C or better in all Retail and Consumer Sciences and/or Hotel and Restaurant Administration courses.

**HUMAN RESOURCE DEVELOPMENT MAJOR**

1. Students must achieve and maintain a minimum of a 2.3 overall GPA for progression into and retention in the major.
2. Students must achieve a GPA of 2.7 in order to enroll in Human Resource Development 479.

**NUTRITION MAJOR**

Students should apply for progression after completing NTR 302 and CHM 350 and prior to entering NTR 313. Applications for progression are available in the departmental office.

For progression into the major, students must meet the following criteria:

1. Cumulative grade point average 2.4 or greater.
HEALTH AND SAFETY SCIENCES
A minor in Community Health Education consists of 24 credit hours: H 300 Health Education, Promotion and Behavior (3); H 426 Health Education Program Planning (3); H 330 Wellness (3); PH 300 Introduction to Public Health; PH 305 Disease Epidemiology, Prevention, and Control (3); and PSY 430 Health Psychology; H 475 Directed Independent Studies (3).

A minor in Adolescent Health consists of 12 credit hours. Health 305 Health of Adolescents (3 hours) is required. Students are to select nine hours from the following: Health 310 Advanced First Aid (3); Health 405 Alcoholism and Alcohol Education (3); Health 406 Death, Dying and Bereavement (3); Health 420 Sex Education As It Relates to Human Sexuality (3); Health 430 Suicide and Crisis Intervention (3); Health 435 Substance Use and Abuse (3); Nutrition 100 Introductory Nutrition (3) or Nutrition 300 Fundamentals of Nutrition (3); Safety 443 Sports and Recreational Safety (3); Child and Family Studies 213 Development in Middle Childhood and Adolescence(3).

Nutrition
A minor in Nutrition consists of 16 credit hours: 100—Introductory Nutrition (3); 302—Life Span Nutrition (3); 310—Physiological Chemistry (4); 313—Vitamins and Minerals (3); and 314—Energy Metabolism and Metabolic Integration (3). All course prerequisites are required.

Retail and Consumer Sciences
A minor in Retail and Consumer Sciences consists of 19 credit hours: 119 Introduction to the Service Industry (3), 210 Retail Operations Management (3), 310 Retail Buying (4) and three of the following: 311 Developing the Service Workforce (3), 341 Family and Consumer Behavior (3), 350 Consumers in the Market (3), 376 Strategies for Growth (3), 411 Entrepreneurial and Small Business Management (3), and 421 International Retail Environment (3).

CHILD AND FAMILY STUDIES

Professors:
P.W. Blanton, Ed.D. Tennessee; C.A. Buehler, Ph.D. Minnesota; J.L. Cunningham, Ph.D. Michigan State; G.L. Frantz, Ph.D. Michigan; R.L. Highberger (Emeritus); Ph.D. Iowa; J.D. Moran, III (Interim Head), Ph.D. Oklahoma State; V.M. Nordquist, Ph.D. Tennessee; C. Steele (Emeritus), Ed.D. Texas Tech; S. Twardosz, Ph.D. Kansas.

Associate Professors:
J.E. Allen, Ph.D. Purdue; J. Malia, Ph.D. Iowa; L. Morris, Ph.D. Tennessee, CFLE; D.E. Smith, Ph.D. Oklahoma State; D. Tegano, Ph.D. Virginia Tech.

The Department of Child and Family Studies has a dual mission for preparing both competent professionals and effective family members through an emphasis on the psychological and social aspects of child-rearing, and families in today’s complex society. Through a combination of classroom instruction and field-based experience, the department prepares undergraduate students for entry-level positions in diverse occupations and for advanced education. The department offers a minor that could lead to teacher licensure or other careers focused on children and/or families.

Within the curricula, undergraduate majors meet objectives: to enhance their foundation for learning; to obtain a broad, general education; and for most, to prepare to enter a specialized career field within the profession or graduate study. This course of study has been constructed to provide a series of educational experiences from broad survey courses to advanced courses of specialized knowledge and from early applied experiences, such as observation and participation, to a professional experience in work settings.

Early Childhood Education Teacher Licensure

Students interested in meeting the requirements for Early Childhood Education licensure (Pre-K—grade 4) in the State of Tennessee are encouraged to determine their interest in licensure very early in their college careers and to seek appropriate advising. Teacher licensure is granted upon successful completion of the fifth year (Professional Year). 12 additional hours may be taken to complete the Master’s degree. For details contact the Human Ecology Advising Center or the Child and Family Studies Department.

CHILD DEVELOPMENT MAJOR

This major is designed to meet the educational needs of undergraduates whose career plans focus on early childhood education. Closely related opportunities may be found in agencies delivering services to young children and their families, programs that include children with disabilities, and other programs that recruit from the distinct developmental needs of children. The child development major is composed of two concentrations that share a common core of general education, college and departmental requirements, but include courses and field experiences that are distinct and lead to different sets of employment or graduate studies opportunities.

One concentration is called Early Childhood Administration. It is designed for undergraduates who have a strong interest in child care and want to seek high level administrative positions in corporate, public, or privately operated programs that serve young children and their families. The other concentration is calledEarly Childhood Development. Undergraduates who do not have an interest in teaching young children or serving as administrators in child care programs, but want a broad-based knowledge of child development and some experience working directly with children and families should pursue this concentration. It not only includes opportunities for hands-on experience, but also contains an applied research component that can be integrated with the field experience. In this way the concentration better prepares undergraduates who want to seek admission to a graduate studies program.

EARLY CHILDHOOD ADMINISTRATION

Hours Credit

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<tr>
<td></td>
<td>English 101, 102</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Humanities Elective</td>
<td>3</td>
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<tr>
<td></td>
<td>Math 101, 115</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Natural Science Elective</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Psychology 110</td>
<td>3</td>
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<tr>
<td>Sophomore</td>
<td>Accounting 201</td>
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<td></td>
<td>Child and Family Studies 220, 350</td>
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Economics 201 ......................................................... 4
3History Elective ........................................... 3
3Humanities Elective ........................................ 3
Human Resource Development 210 ............................... 3
Nutrition 100 ........................................... 3
Psychology 210 .................................................. 3
Junior
Child and Family Studies 351, 352, 450 ........... 10
*Foreign Language Elective ................................................. 3
Health 310 ................................................... 3
Speech 240 ................................................ 3
3Elective .................................................. 3
Senior
Business Law 301 ............................................... 3
Child and Family Studies 451, 470, 471, 475 .... 18
Human Ecology 410 .................................................. 3
Human Resource Development 471, 475 ............ 6
Elective ............................................................. 6-8

Total: 125 hours

1Courses are to be chosen from two of the following categories: literature, speech or oral interpretation; art or music appreciation; philosophy or religious studies.
2One of the following sequences is to be chosen:
Astronomy 151 and 152, Biology 101 and 102.
Botany 110 and 120, Chemistry 100 and 110,
Chemistry 120 and 130, Geography 131 and 132,
Geology 101 and 102, Physics 101 and 102.
3One semester of American History and one semester of another history-prefix course.
4Must be at the 200 level or above.

EARLY CHILDHOOD DEVELOPMENT

Freshman
Child and Family Studies 110, 211 .................... 6
English 110, 102 .............................................. 6
Math 110, 115 ................................................. 6
Natural Science Elective .................................. 6-8
Psychology 110 .................................................. 3
Sophomore
Child and Family Studies 213, 220, 350 ........... 10
3History Elective ........................................... 6
3Humanities Elective ......................................... 3
Human Resource Dev 210 ............................... 3
Nutrition 100 ................................................... 3
Psychology 210 .................................................. 3
Speech 220 .................................................. 3
Junior
Anthropology 320 ............................................. 3
Child and Family Studies 351,352, 420 ........... 10
*Foreign Language Elective ................................................. 3
Foreign Language Elective ................................................. 3
Foreign Language Elective ................................................. 3
Health 310 ................................................... 3
Human Ecology 410 ............................................. 3
Information Science 330 .................................. 3
Psychology 310 ................................................... 3
Senior
Child and Family Studies 455, 471, 481 ........... 15
Psychology 330 ................................................... 3
3Restricted Elective ........................................ 3
3Elective ............................................................. 6

Total: 124 hours

1Courses are to be chosen from two of the following categories: literature; speech or oral interpretation; art or music appreciation; philosophy or religious studies.
2One of the following sequences is to be chosen:
Astronomy 151 and 152, Biology 101 and 102.
Botany 110 and 120, Chemistry 100 and 110,
Chemistry 120 and 130, Geography 131 and 132,
Geology 101 and 102, Physics 101 and 102.
3One semester of American History and one semester of another history-prefix course.
4Must be intermediate at the 200 level or above.
5ECD Restricted Electives: Students must select 6 semester hours of restricted electives. See Advisor or Advising Center for list of recommended and restricted electives.
6At least 48 hours in 300-400 level courses are required.

DUAL LICENSURE: EARLY CHILDHOOD EDUCATION/EARLY CHILDHOOD SPECIAL EDUCATION

Hours Credit
Freshman
Child and Family Studies 110 ................................. 3
Child and Family Studies 211 ....................................... 3
Child and Family Studies 213 ....................................... 3
English .............................................................. 6
3History Elective ........................................... 3
Human Resource Development 210 ....................... 3
3Humanities Elective ......................................... 3
Math 110 or 201 .................................................. 3
Math 115 or 202 .................................................. 3
Sophomore
Child and Family Studies 220 .............................. 3
Child and Family Studies 350 ....................................... 4
Child and Family Studies 351 ....................................... 4
Elective ............................................................. 3
3History Elective ........................................... 3
Natural Science Elective ............................................. 6-8
*Social Science Elective ........................................... 6

Junior
Child and Family Studies 471 ....................................... 3
Audiology /Speech Pathology 461 .............................. 3
*Foreign Language Electives ................................................. 3
Health 310 ................................................... 3
Human Ecology 410 ............................................. 3
Humanities Electives ............................................... 3
Information Sciences 330 .................................. 3
Social Science Elective ............................................. 3
Early Childhood Education 472 ......................... 6
Senior
Education 400 ........................................... 2
Education 401 .................................................. 2
Instructional Technology, Curriculum, and Evaluation 486 ....... 3
Electives ............................................................. 2-3
Early Childhood Education 410 ......................... 3
Elementary Education 422 .............................. 6
Early Childhood Education 445 ......................... 3
Early Childhood Education 471 ......................... 6

Total: 125 hours

NOTE: Students may test out of Human Resource Development 210; an elective should then be substituted.

1Courses are to be chosen from two of the following categories: literature; speech, art or music appreciation, philosophy, or religious studies.
2Must be at the 200 level or above.
3One semester of American History and one semester of another course with a history prefix.
4Select at least 3 hours from either political science, economics, psychology, sociology, geography, or anthropology. Additional courses can be taken from applied fields such as Nursing 202, 213; Social Work 200, 250; Human Services 220; and Health.

FAMILY STUDIES MAJOR

The Family Studies major is designed for students whose educational and career goals are focused on studying and working with individuals and families within educational programs and community services. The major is designed to accommodate special interests or strengths of students and allows for flexibility and individualization. All students take a basic core with individualization taking place within the pods selected by the student. The student may design a program in consultation with an advisor, making selections from the recommended pods, channeling the course of study in a particular direction so that all students graduating with a Family Studies major will have depth in family knowledge, a broad integrative perspective and means for application. This is basically core work focusing on a concept that relates to the study of the family. Course work to support the concepts comes from many areas across the university. Pods are referred to as restricted electives within the curriculum description and will constitute a minimum of 36 credit hours for each student’s program. Choices for pods are: Adulthood and Aging, Business, Families and Youth at Risk, Family and Community Services, Family Studies Internship, Health and Wellness, Human Development, Instramental Programs, Life Management, Mass Media, Interaction and Conflict Resolution Skills, Multi-Cultural, Professional Development, Public Policy, Research, Women and Families.

Hours Credit
Freshman
Electives .................................................. 6
English 101, 102 .............................................. 6
Math 110, 115 .................................................. 6
Math 120, 121 .................................................. 6
3Humanities Electives ......................................... 3
3Social Science Electives ........................................... 6
Sophomore
Child and Family Studies 205, 210 ....................... 6
220, 240 .................................................. 11
History Electives ............................................... 6
Human Resource Development 210 ....................... 3
Natural or Physical Sciences ........................................... 6
3Restricted Electives ........................................... 6
CONSUMER AND INDUSTRY SERVICES MANAGEMENT

Professors:

Associate Professors:
G. Bhat, Ph.D. Georgia Tech; M.D. Blanton, Re.D. Indiana; C. Costello, Ph.D. Tennessee; A. Fairhurst, Ph.D. Oklahoma State; Ken L. Krick, Re.D. Indiana.

Research Associate Professors:
M. Dever, Ph.D. Kansas State; P. Noriega, D.B.A. NOVAP; Tsai, Ph.D. Tennessee.

Assistant Professors:
C. Hassenboehler, Ph.D. Tennessee; W.C. Ko, Ph.D. Tennessee; C. Sun, Ph.D. China; Dong Zhang, Ph.D. Tennessee.

The mission of the Department of Consumer and Industry Services is to provide internationally and nationally recognized interdisciplinary programs that prepare professionals and serve organizations in the public and private sectors through teaching, research, and technology transfer.

HOTEL AND RESTAURANT ADMINISTRATION

The Hotel and Restaurant Administration concentrations focus on meeting the middle- and upper-level management needs of the food and lodging industry. It is a program that assists students in getting the breadth of knowledge, responsibility and creativity to meet the changing environment of complex management problems in industry. A business minor is built into the degree requirements.

The Hotel and Restaurant Administration concentrations require extensive field experience. The curriculum provides a strong base in management and computation. The general education electives help students to sharpen their analytical, conceptual, and communication abilities. Graduates may start as management trainees in restaurants, foodservice, hotels, support industries, or in tourism operations with subsequent upward mobility into management or staff positions.

RESTAURANT AND FOODSERVICE MANAGEMENT

Economics 201 ...................................................... 4
Psychology 110 ....................................................... 3
Speech 240 ........................................................... 3
Human Resource Development 210 ................................ 3
Retail and Consumer Studies 341 .................................. 3
Hotel and Restaurant Administration 210 ......................... 3

Junior
History Elective ................................................... 3
Marketing 301 ....................................................... 3
Management 301 ..................................................... 3
Finance 301 ........................................................... 3
Business Elective ..................................................... 3
Hotel and Restaurant Administration 326, 311, 323, 341, 376, 390 ........................................ 16
Hotel and Restaurant Administration 420 ........................................ 6

Senior
Human Ecology 410 .................................................. 3
Hotel and Restaurant Administration 410, 425, 445 9
Hotel and Restaurant Administration Electives .......................... 3
Hotel and Restaurant Administration 480 or 490 and 485 ........................................ 12

Total: 128-130 hours

1Hotel and Restaurant Administration electives: select 4 hours or courses offered by the College of Business Administration.

HOTEL/TOURISM MANAGEMENT

Hours Credit
Freshman
English 101, 102 ..................................................... 6
History Elective ....................................................... 3
Natural Science Elective ............................................. 6-8
Math 119 or 123, and 129 ......................................... 15
Humanities Electives ................................................ 6
Hotel and Restaurant Administration 119 .......................... 3
Electives ................................................................. 3

Sophomore
History Elective ....................................................... 3
Accounting 201, 202 .................................................. 6
Statistics 201 ........................................................... 3
Economics 201 ......................................................... 3
Psychology 110 ....................................................... 3
Speech 240 ........................................................... 3
Human Resource Development 210 .................................. 3
Retail and Consumer Studies 341 .................................. 3
Hotel and Restaurant Administration 211 .......................... 3

Junior
Marketing 301 ......................................................... 3
Management 301 ..................................................... 3
Finance 301 ........................................................... 3
Business Elective ..................................................... 3
Hotel and Restaurant Administration 326, 311, 323, 376, 390, 421, 420 20
Hotel and Restaurant Administration 421 ........................................ 6

Senior
Human Ecology 410 .................................................. 3
Hotel and Restaurant Administration 424, 425, 429, 450 ......................... 12
Hotel and Restaurant Administration 481 .................................. 4
Hotel and Restaurant Administration 481, 491 and 486 .......................... 12

Total: 128-130 hours

1Hotel and Restaurant Administration electives: select 4 hours or courses offered by the College of Business Administration.

RECREATION AND TOURISM MANAGEMENT

The professional disciplines that comprise Recreation and Tourism Management (RTM) prepare students for management and leadership positions in many commercial recreation, sport and tourism enterprises. The RTM curriculum is one of only two programs in the state of Tennessee that is accredited in General Recreation and Parl Association’s Council on Accreditation.
The Commercial Recreation and Tourism Management concentration is designed to prepare students for employment in management and leadership positions in the recreation and tourism industry. Students will be competitive in securing employment in travel and tourism agencies, convention bureaus, resorts, corporate leisure services, sporting venues, city/county/state government and quasi public agencies, voluntary and religious organizations. A business minor is built into the Commercial Recreation and Tourism Management concentration.

The Therapeutic Recreation concentration prepares students for employment in management and leadership positions with agencies that deliver health care services. Students are successful in securing employment in psychiatric, special education, and community based programs. In the Therapeutic Recreation concentration minors may be selected in Psychology and Child and Family Studies. Graduates fulfill the eligibility requirements for National Therapeutic Recreation Society certification.

A minimum of a 2.3 GPA is required for progression to and retention in the program.

**RECREATION AND TOURISM MANAGEMENT: COMMERCIAL RECREATION AND TOURISM MANAGEMENT CONCENTRATION**

**(Accredited in General Recreation and Therapeutic Recreation by NRPA/AALR)**

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<thead>
<tr>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Freshman</td>
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<tr>
<td>English 101, 102</td>
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<td>Human Resource Development 210</td>
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<td>Math 125 or 141</td>
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</tr>
<tr>
<td>Recreation and Tourism Management 320</td>
</tr>
<tr>
<td>Junior</td>
</tr>
<tr>
<td>Finance 301</td>
</tr>
<tr>
<td>Child and Family Studies 220 or Retail and Consumer Sciences 341</td>
</tr>
<tr>
<td>Health 310</td>
</tr>
<tr>
<td>Recreation and Tourism Management 390</td>
</tr>
<tr>
<td>Recreation and Tourism Management 410</td>
</tr>
<tr>
<td>Management 310, 415, 440</td>
</tr>
<tr>
<td>Business Elective 300 level or above</td>
</tr>
<tr>
<td>Marketing 301</td>
</tr>
<tr>
<td>Hotel and Restaurant Administration 324, 335, 423, 425; Forestry 321, 423; Retail and Consumer Sciences 411</td>
</tr>
<tr>
<td>Senior</td>
</tr>
<tr>
<td>Electives</td>
</tr>
<tr>
<td>Recreation and Tourism Management 410, 430, 470</td>
</tr>
<tr>
<td>Recreation and Tourism Management 490</td>
</tr>
<tr>
<td>Human Ecology 410</td>
</tr>
<tr>
<td>Total: 128 hours</td>
</tr>
</tbody>
</table>

1. Courses must be in addition to those specified for the major and must be selected from: Business Administration; Child and Family Studies; Health, Leisure and Safety Sciences; Hotel and Restaurant Administration; Human Resource Development; Human Services; Rehabilitation and Deafness; Sociology; and Psychology.

2. Electives include a combination of classroom instruction and field based experience, students prepare for entry level positions in diverse occupations and for advanced education. Through the Retail and Consumer Sciences concentration, is one of the largest programs of this type in the Southeast. Retailing is one of the fastest growing segments of our economy, and opportunities for employment will continue to be excellent through the 21st Century. This program requires field study experiences where students are guided in the selection of locations for on-the-job experiences related to their career area as a part of their educational program. Professional contacts made in field study experiences often lead to opportunities for career placement upon graduation.

**RECREATION AND TOURISM MANAGEMENT: THERAPEUTIC RECREATION CONCENTRATION**

**(Accredited in General Recreation and Therapeutic Recreation by NRPA/AALR)**

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
</tr>
<tr>
<td>English 101, 102</td>
</tr>
<tr>
<td>Math Electives</td>
</tr>
<tr>
<td>History Electives</td>
</tr>
<tr>
<td>Human Resource Development 210</td>
</tr>
<tr>
<td>Child and Family Studies 220 or Retail and Consumer Sciences 341</td>
</tr>
<tr>
<td>Recreation and Tourism Management 201</td>
</tr>
<tr>
<td>Human Ecology 410</td>
</tr>
<tr>
<td>Recreation and Tourism Management 201</td>
</tr>
<tr>
<td>Psychology 110</td>
</tr>
<tr>
<td>Sophomore</td>
</tr>
<tr>
<td>Classics 273</td>
</tr>
<tr>
<td>Child and Family Studies 210</td>
</tr>
<tr>
<td>Ecology and Evolutionary Biology, or Biology Electives</td>
</tr>
<tr>
<td>Ecology and Evolutionary Biology 230</td>
</tr>
<tr>
<td>Speech 210 or 240</td>
</tr>
<tr>
<td>Human Ecology 410</td>
</tr>
<tr>
<td>Health 310</td>
</tr>
<tr>
<td>Recreation and Tourism Management 290</td>
</tr>
<tr>
<td>Recreation and Tourism Management 320, 325</td>
</tr>
<tr>
<td>Philosophy 345</td>
</tr>
<tr>
<td>Junior</td>
</tr>
<tr>
<td>Exercise Science 332 or Ecology and Evolutionary Biology 240</td>
</tr>
<tr>
<td>Psychology 330</td>
</tr>
<tr>
<td>Sociology or Psychology Electives</td>
</tr>
<tr>
<td>Professional Support Course Electives</td>
</tr>
<tr>
<td>Electives</td>
</tr>
<tr>
<td>Recreation and Tourism Management 310, 425</td>
</tr>
<tr>
<td>Recreation and Tourism Management 390</td>
</tr>
<tr>
<td>Senior</td>
</tr>
<tr>
<td>Exercise Science 411</td>
</tr>
<tr>
<td>Electives</td>
</tr>
<tr>
<td>Recreation and Tourism Management 410, 420, 430</td>
</tr>
<tr>
<td>Recreation and Tourism Management 490</td>
</tr>
<tr>
<td>Total: 128 hours</td>
</tr>
</tbody>
</table>

1. RCS Electives: Select 9 or 21 hours from the following courses: RCS350, 411, 412, 415, 421, 450, 476, 493, 495, TS 220, HE 310.

**HEALTH AND SAFETY SCIENCES**

**Professors:**
- D. E. Smith (Interim Head), Ph.D. Oklahoma State; June Goreki, Dr. P.H. California (Los Angeles); Charles B. Hamilton, Dr. P.H. Oklahoma; Robert H. Kirk, H.S.D. Indiana; Bill C. Wallace, Ed.D. Colorado State.

**Associate Professors:**
- Robert J. Pursley, Ph.D. Iowa; Paula C. Zemel, Ph.D. Wayne State.

**Assistant Professors:**

**Instructor:**
- Rosa Emory Thomas (Adjunct) MPH, North Carolina.

The department fosters development of pre-professional and professional competencies by those interested in the disciplines of health education/promotion, public health, and safety. The Health and Safety Sciences academic programs emphasize health promotion (lifestyle behaviors) and health protection (regulatory, environmental, and safety) strategies for improving individual and community well-being directly relating to two University of Tennessee thematic areas of strength, Health and Biomedical Sciences and Children and Families. The faculty is committed to the educational value of community-based service learning, applied research, and community outreach. For more information: http://hsa.he.uitk.edu.
COMMUNITY HEALTH EDUCATION

The Community Health Education program prepares students to work in a variety of settings that focus on health promotion and disease prevention among individuals, families, and their communities. Toward this end, the Program includes traditional classroom experiences as well as community experiences, both of which revolve around a socio-ecological perspective on health promotion. This perspective assists students in developing an ability to foster voluntary change in health behavior through a combination of educational, political, and social interventions. The Program is designed to prepare entry-level health education specialists. Typical employment settings include local health departments, voluntary health agencies and worksites.

HUMAN RESOURCE DEVELOPMENT

Professors:
Billie Collier (Interim Head), Ph.D. Tennessee; E.W. Brewer, Ed.D. Tennessee; C.P. Campbell (Emeritus), Ed.D. Maryland; G.D. Cheek (Emeritus), Ph.D. Kansas State; C.B. Coakley (Emeritus), Ph.D. Wisconsin; D.G. Craig (Emeritus), Ed.D. Cornell; J.O. DeJonge, Ph.D. Iowa State; R.W. Haskel (Emeritus), Ph.D. Purdue; G.C. Petty, Ph.D. Missouri.

Associate Professors:
R. Hanson (Emeritus), Ph.D. Purdue; J.H. McNinis (Emeritus), Ph.D. Florida State; V.J. Stout, Ed.D. Tennessee.

Assistant Professors:
S.J. Bartley, Ph.D. Tennessee; V. Kupritz, Ph.D. Virginia Tech; D. Lim, Ph.D. Illinois; R. Pierce, Ph.D. Ohio State.

The Human Resource Development Department offers teacher licensure and credentialing programs for professionals in the integrated use of training and development, organization development, and organizational effectiveness.

The B.S. degree teaching options in HRD have the general focus of preparing students for licensure and careers as secondary and postsecondary teachers of business/marketing education, family and consumer sciences education, and technology education.

The B.S. degree option in training serves individuals who wish to work as industrial training specialists, supervisors, managers, and persons employed in other industry-related occupations. The program is designed to develop the expertise needed by those in the private sector involved in training and human resource development.

FAMILY AND CONSUMER SCIENCES EDUCATION

A teacher education program for secondary vocational family and consumer sciences teachers is available within the College. Undergraduate students should follow the Teacher Education Concentration for Family and Consumer Sciences Education in the Department of Human Resource Development. Potential teachers must meet teacher education requirements of the College of Education and apply to be admitted to Teacher Education (see College of Education). Teacher licensure is granted at the successful completion of the fifth year or Professional Year. Fifteen additional hours may be taken to complete the Master’s Degree. For details, see the Graduate Catalog.

Students who have a B. S. degree and want family and consumer sciences teacher licensure may obtain a list of the prerequisite course work for entering the professional year.

Individuals interested in careers with the Extension service may follow the Family and Consumer Sciences Education curriculum in Human Resource Development, or may follow the Family Studies curriculum in the Department of Child and Family Studies.

The following courses are taken during the post baccalaureate, Professional Year:

Professional Year

Human Ecology 574
Human Ecology 575
Human Ecology 591
Human Resource Development 504, 521, 522

Graduate Total: 24 hours

1Students seeking licensure in Business and Marketing Education must take Math 125 and one other math course.
2Students seeking licensure in Family and Consumer Science Education must take Chemistry 102, and CFS 220. Technology education students are encouraged to take Physics.
3Family and Consumer Science Education: CFS 211, 240, 312, 354, 360, 420, 430; Nutr 100, 302; HRA 101; TS 220; RCS 341, 350; Speech 210. (42 hours.)
4Business and Marketing Education: Acct 201, 202; Finance 301; Bus Law 301; Management 301; Marketing 301, 310, 420; HRD 306, 315, 430, 434; RCS 350, 421; an Economics Elective and Statistics 201 (48 hours).
5Technology Education: Comm 100, Logistics 301, 302; HRD 161, 163, 300, 305, 306, 361, 370, 371, 441, 442; RCS 350. (42 hours.)

1See department for a list of suggested electives.
2Requires admission to Teacher Education.

(Note: Students must earn at least a grade of C in teaching specialty courses and required HRD courses.)

TRAINING AND DEVELOPMENT CONCENTRATION

Freshman
English 101, 102 .................................................6
Mathematics Electives .............................................6
Natural or Physical Science Electives .............................6-8
Human Resource Development 210 ..............................3
Psychology 110 ......................................................3
Teaching specialty courses .........................................3

Sophomore
History Electives ..................................................6
Humanities Electives .................................................6
Economics 201 ....................................................4
Child and Family Studies 213 .....................................3

Junior
Human Resource Development 201 ................................2
Human Resource Development 320, 325 ..........................6
Teaching Specialty Courses .......................................15
Electives ............................................................9

Senior
Human Resource Development 330, 452 ..........................6
Education 400, 401 ..................................................5
Human Ecology 410 ..................................................3
Teaching Specialty Courses .......................................15
Electives ............................................................4

Undergraduate Total: 124 hours

1Total: 125 hours
The Department of Nutrition promotes an understanding of nutrition for the enhancement of the physiological and social well-being of individuals and families across the lifespan through teaching, research and service. Students learn about nutritional needs from the smallest unit of the cell to the individual’s needs throughout the lifecycle; the ways that attitudes, and beliefs influence food patterns; the management of resources in food service and the properties of foods. Thus, Departmental programs service society through graduates who are able to interpret and contribute to social needs in regard to nutrition and wellness, both as professionals and as responsible citizens.

The professional discipline of Nutrition is rooted firmly in general education and provide a clearly defined base of professional knowledge. The foundation for the major includes basic sciences, i.e., chemistry, microbiology, physiology, psychology and sociology. The natural sciences provide a base for understanding nutrient functions in the body and the social sciences to better understand cultural aspects of food and food related consumer needs. In addition, students with a strong research interest may prepare for research-oriented careers in laboratories or as graduate students in nutrition or other biomedical disciplines.

NUTRITION

This major is designed for students interested in basic and applied sciences. Students are expected to acquire advanced education in chemistry, biology, food science, and behavioral sciences. The B.S. in Nutrition is currently granted approval status by the Commission of Accreditation/Approval for Dietetics Education of the American Dietetic Association, 216 Jackson Boulevard, Chicago, Illinois 60606-6995, (312) 899-4876. These requirements are regarded as the basic education component for the preparation of persons entering the dietetic profession. The generalist emphasis of this program prepares individuals to enter the dietetic profession in general dietetics and includes nutrition, foodservice systems management, management theory and principles and communication sciences including computer and statistical applications. Graduates are prepared to enter accredited dietetic internships. An internship experience completes academic and practice requirements for eligibility as a member of The American Dietetic Association and qualifies the graduate to apply for the Registration Examination to become a Registered Dietitian (R.D.). Students may receive more information from the department about R.D. requirements. R.D.s work as members of health care teams in acute care hospitals and community-based settings, home health care programs, college and university foodservice facilities, wellness clinics and private practice. Extension Service and food companies are also avenues of employment.

Hours Credit

| Freshman | 
| Chemistry 120, 130 | 8 | 
| English 101, 102 | 6 | 
| History-prefix Elective | 3 | 
| Child and Family Studies 210 | 3 | 
| Math 119 or 123, and 125 | 6 | 
| Psychology 110 | 3 | 
| Nutrition 100 | 3 | 
| Economics 201 | 4 | 
| Human Resource Development 210 | 3 | 
| Microbiology 210 | 3 | 
| Statistics 201 | 3 | 
| Biochemistry and Cellular and Molecular Biology 230 | 5 | 
| Electives | 3 | 

| Sophomore | 
| Hotel and Restaurant Administration 210, 321 | 4 | 
| Nutrition 201, 302 | 4 | 
| Chemistry 350 | 3 | 
| Economics 201 | 4 | 
| Human Resource Development 210 | 3 | 
| Microbiology 210 | 3 | 
| Statistics 201 | 3 | 
| Biochemistry and Cellular and Molecular Biology 230 | 5 | 
| Electives | 3 | 

| Junior | 
| Accounting 201 | 3 | 
| Elective | 3 | 
| History Elective | 3 | 
| Humanities Elective | 3 | 
| Hotel and Restaurant Administration/Retail and Consumer Science 341 | 3 | 
| Nutrition 310, 312, 313, 314 | 14 | 
| Speech 240 | 3 | 

| Senior | 
| Human Ecology 410 | 3 | 
| Elective | 6 | 
| Hotel and Restaurant Administration 326, 341 | 4 | 
| Humanities Elective | 3 | 
| Nutrition 303, 410, 412, 415, 416, 420 | 17 | 

Total: 129 hours

1 Credit for these courses must be earned at the University of Tennessee.
The College of Nursing at the University of Tennessee was established in July 1971 in response to a long-recognized and well-established need for nurses prepared at the collegiate level. The undergraduate program combines the unique resources of the UT campus with those of the university's comprehensive teaching hospital and other health care agencies in a manner that enables both faculty and students to participate fully in all facets of the health care delivery system. The program is accredited by the National League for Nursing Accrediting Commission that may be contacted for information about tuition, fees, and length of program at 61 Broadway, New York, New York 10006, phone 1-800-669-9656. The program is also unconditionally approved by the Tennessee Board of Nursing.

The baccalaureate nursing program has as its central foci the person, health, environment, and nursing. General education courses, nursing courses, and electives are organized in a manner designed to promote and develop creative thinking and other cognitive, affective, and psychomotor processes that are essential for effective nursing practice and for full and meaningful involvement as a contributing member of society. A broad base of general education, a thorough study of human behavior, an emphasis on health maintenance, health promotion, and health restoration, and a strong family and community orientation are essential components of baccalaureate education in nursing. By maintaining a high quality relevant program that is responsive to the increasing complexity of health care delivery, the ever changing health needs of society, and the changing and expanding role of the nurse, graduates of the program are able to: (1) assume beginning leadership positions in nursing in a variety of settings; (2) work collaboratively with other health professionals; (3) function as socially conscious and contributing citizens; and (4) pursue advanced education on either a formal or an informal basis.

GENERAL REQUIREMENTS

In order to obtain a Bachelor of Science in Nursing degree students are required to successfully complete eight semesters of full-time study or the equivalent in part-time study. One-hundred twenty-three semester hours are required for graduation. The program also accommodates registered nurses who hold associate degrees in nursing or who are graduates of diploma nursing programs. All upper division courses, with the exception of 202, 314, 351, 406, and 480, are restricted to students who have been approved for progression. (See Progression Policies and Procedures.)

GRADING AND CONTINUATION POLICIES

1. The minimum acceptable grade for all courses in the curriculum is a C.
2. No nursing course may be repeated more than once. If a D, F, or NC grade is
earned on the second attempt the student will be required to withdraw from the program.

3. Any student who receives a grade of D, F, or NC for more than one nursing course will be required to withdraw from the program even if the previous course for which D or F was awarded has been repeated with a grade of C or higher.

4. If a student receives an incomplete (I) in a nursing course, the I must be removed prior to enrolling in any course for which the uncompleted course is a prerequisite.

5. If a student’s clinical performance for any nursing course is found to be unsatisfactory, the grade for that course will be an F regardless of any other grades earned in other components of the course. If the unsatisfactory clinical performance is characterized by unethical, unprofessional, or unsafe behavior, behavior that actually or potentially places the client in jeopardy, the student will be required to withdraw from the program.

6. Requirements for competence in cardiopulmonary resuscitation are included in the Undergraduate Student Handbook.
Social work is a helping profession which focuses on providing skilled intervention in the prevention and amelioration of individual and societal problems. It is a challenging and rewarding career involving the application of knowledge, skills, and professional values to assist individuals, families, groups, and communities in reaching their potential. The primary mission of the undergraduate social work program is to develop generalist social workers who are strategic thinkers, life-long learners, and opinion shapers. It is the purpose of the College to provide an education which enhances individual and career development and fosters involvement on behalf of social and economic justice.

The program prepares students for social work careers in such diverse areas as schools, youth programs, family service agencies, nursing homes, courts, mental health centers, and welfare agencies. The degree provides graduates a competitive advantage in many jobs, the possibility of up to one year’s standing in some master’s degree programs in social work, and the potential to be licensed in a number of states throughout the nation. The social work curriculum builds on a strong liberal arts base. The humanities and the social and behavioral sciences are emphasized to help students understand human diversity and the transactions between people and their environment. The curriculum combines classroom experience and agency-based field placements. Courses provide a knowledge base in social work practice theory, human behavior, social welfare policy, and research. Educationally directed field placements, which consist of over 600 clock hours of supervised field instruction in agency settings throughout greater Knoxville, provide extensive and challenging opportunities for students to apply the lessons of the classroom to the needs of society. The program is accredited by the Council on Social Work Education.

The undergraduate social work program (BSSW) started in 1982 in the College of Liberal Arts. It was granted initial accreditation by the Council on Social Work Education in January 1983, and reaffirmation was given in 1992. The program was transferred to the College of Social Work in September 1985. The three programs, BSSW, MSSW and Ph.D., in the College represent the full continuum of social work education.

FACILITIES

The College of Social Work is housed in Henson Hall, located on the corner of Cumberland Avenue and Volunteer Boulevard on the UT campus. This building houses the administrative and faculty offices, along with classrooms for the BSSW, MSSW and Ph.D. programs. Video and computer resources are available to facilitate instruction.

GRADUATE PROGRAM

The College of Social Work offers a fully accredited two year graduate professional degree at the master’s level (MSSW). The College also offers a graduate program leading to a Doctor of Philosophy in Social Work (Ph.D.). Information concerning graduate programs is given in the College of Social Work Bulletin and also in the Graduate Catalog. Masters Degree Programs are offered on the campus in Knoxville and in Nashville and Memphis. The Ph.D. Program is offered in Knoxville.

GRADING POLICY

The satisfactory/no credit option is not permitted in the major. The minimum acceptable grade for all social work courses is a C. Courses, other than field, in which a D or F is achieved may be repeated once. Field courses must be completed with a C or better, and may not be repeated.

A student receiving an incomplete (I) in any social work course must remove the incomplete before enrollment in subsequent field practice.

COURSE LOAD

The maximum credit hours per semester allowed for any student is 19. Special permission must be obtained for any over load.
**PROGRESSION REQUIREMENTS**

Students admitted to the University may request a faculty advisor from the College of Social Work. Students in the College must move through Initial and Full Progression. The following factors identify progression criteria for all social work students:

**INITIAL PROGRESSION**

1. Successful completion of Social Work 200 and 250 with a grade of C or better.
2. Cumulative grade point average of 2.0 or above.
3. Successful completion of a minimum of 60 semester hours. Initial progression must be completed prior to enrollment in any 300-level social work courses.
4. Favorable review of the student’s application for entry into the junior level social work courses by the faculty admissions committee.
5. Completion of fifty (50) clock hours in community service at one public/private social service agency. The community service is to take place after enrollment in a higher education institution and in the twenty-four month period prior to application for initial progression.

**FULL PROGRESSION**

1. Successful completion of junior level social work courses with a grade of C or better.
2. Cumulative grade point average of 2.0 or above.
3. Successful completion of a minimum of 90 semester hours. Full progression must be completed prior to enrollment in 400-level social work courses.
4. Favorable approval by the BSW faculty prior to entry into senior level classes. This process will include a review of the student’s performance in junior field practice.

Full progression is based on the recognition that social work has an intensive field component in which students demonstrate aptitude and ability to work with other people. While review is ongoing, full progression provides an additional opportunity to review the students’ potential for entry-level practice.

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1. Initial progression is also determined by the number of available field practice slots in social service agencies and classroom space. If the number of students who fulfill the above criteria exceeds the number of students that can be accommodated, students will be selected on the basis of cumulative GPA for courses completed, the grades received in SW 200, 250, evaluation of community service, and writing skills demonstrated in the application essay.

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**CURRICULUM**

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Freshman</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>English 101, 102 .................................... 6</td>
</tr>
<tr>
<td></td>
<td>Mathematics 110 or Math 119 ....................... 3</td>
</tr>
<tr>
<td></td>
<td>Anthropology 130 .................................... 3</td>
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<tr>
<td></td>
<td>Political Science 101.............................. 3</td>
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<td></td>
<td>Women’s Studies 220, 453, 375, or 382 ............ 3</td>
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<tr>
<td>Sophomore</td>
<td>Information Sciences 310 .......................... 3</td>
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<tr>
<td></td>
<td>Humanities (Literature Package) ................... 6</td>
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<td></td>
<td>Humanities (Philosophy) ........................... 3</td>
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<tr>
<td></td>
<td>History 241-242 or 261-262 ....................... 6</td>
</tr>
<tr>
<td></td>
<td>Psychology 220 ..................................... 3</td>
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<tr>
<td></td>
<td>Social Work 200, 250 ............................... 6</td>
</tr>
<tr>
<td></td>
<td>Economics 201 ...................................... 4</td>
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<tr>
<td>Junior</td>
<td>Social Work 312, 313, 314 .......................... 9</td>
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<tr>
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<td>United States Studies ............................. 3</td>
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<td>Foreign Studies ..................................... 3</td>
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<td>Math 115 or Psychology 385 ....................... 3</td>
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<td>Social Work 310, 380 ............................... 6</td>
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<td>Child and Family Studies 220 ..................... 3</td>
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<td>Senior</td>
<td>Social Work 412, 416 ............................... 6</td>
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<tr>
<td></td>
<td>Social Work 480, 481 ................................ 12</td>
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<tr>
<td></td>
<td>Social Work 460 ..................................... 2</td>
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<td></td>
<td>Regional Studies .................................... 3</td>
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<tr>
<td></td>
<td>Electives ............................................ 11</td>
</tr>
</tbody>
</table>

Total: 124 hours

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1. Rehabilitation and Deafness 223 - American Sign Language I (3), and 226 - American Sign Language II (3) will fulfill the foreign language requirement.

2. The following literature packages may be selected:
   - Classics 235-236; English 201-202, 211, 221-222; German 231-232; Germanic and Slavic Languages 221-222; Religious Studies 312-313; French 291-292, Spanish 291-292.
   - One course selected from Classics 221; Classics 222; Philosophy 110; French 111; Philosophy 120; Philosophy 121; Philosophy 240; Philosophy 344; Philosophy 380; Philosophy 382.
   - One course selected from: Anthropology 310; Anthropology 315; English 332, Geography 363; Health 405, Health 406, Health 425, Health 430; History 360; History 440; Philosophy 346; Philosophy 390; Political Science 311; Political Science 350; Political Science 374; Religious Studies 345; Religious Studies 352; Sociology 343; Sociology 340; Sociology 351; Speech 466; University Studies 311; University Studies 321.
   - One course selected from: Anthropology 313; Anthropology 314; Classics 381; Classics 382; English 392; Geography 372; Geography 373; Geography 375; Geography 379; German 363; History 320; History 360; History 361; History 374; Philosophy 326; Political Science 350; Political Science 361; Religious Studies 332; Religious Studies 386; French 432; Spanish 431; Spanish 471; Sociology 446; Women’s Studies 360.
   - Anthropology 312; Geography 363; History 444; History 449; Political Science 315; Religious Studies 351.
Established in 1971, the School of Information Sciences provides a graduate program for the preparation of librarians and other information professionals for work in all types of information environments. The program of study offers the Master of Science degree. In addition, the School of Information Sciences provides elective courses at the undergraduate level.

UNDERGRADUATE PROGRAM

The School of Information Sciences offers undergraduate courses that reflect the overall mission of the school: to educate people to live, work and flourish in an information society through excellence in teaching, research, and public service in library and information science.

The undergraduate courses support a heightened awareness of today's information-rich environment. Increasingly, college graduates must understand the nature of information: sources, value, creation, organizing principles, transfer, and uses in society. Those who thrive in the information society must know how to identify and respond to their information needs. First as students, and then as professionals and citizens, graduates need to apply techniques and technologies in the search, retrieval, and evaluation of relevant information to meet their information needs. They must prepare to use a rapidly increasing array of information systems and technologies to seek and to manage information resources. These abilities, which add value to any field of study, constitute information survival skills in the twenty-first century. Graduates need to know when they can help themselves and when they should seek assistance from various information professionals.

The undergraduate courses are planned for the following groups of people:

1. Students who wish to develop a better understanding of the role of information in society.
2. Students whose academic major stresses understanding and use of information in society.
3. Students whose academic major and/or minor requires significant use of research libraries.
4. Students who are prospective candidates for the graduate program in library and information science.

For information about undergraduate courses, contact the School of Information Sciences.

GRADUATE PROGRAM

The School of Information Sciences offers a graduate professional degree program accredited by the American Library Association. Information concerning the graduate program is given in the Graduate Catalog.

COMPUTER FACILITIES

The School of Information Sciences provides a teaching demonstration computer laboratory at Temple Court. The laboratory includes a large-screen display system and more than 20 networked computers. The laboratory is designed to reflect the current computing environment. The laboratory serves as a classroom for undergraduate and graduate courses offering hands-on instruction in information technology. Equipment is available for individual use when the laboratory is not reserved for class instruction. The computers are connected to the SIS Local Area Network (LAN). In addition, the computers are connected to the campus ethernet network from which they access all the increasingly important communications and information resources of the Internet. Networked laser printing is included in the laboratory.

The advanced laboratory is designed to serve the research and curriculum needs of the school. Equipment includes high-end Macintosh Quadra, and IBM PC computers. The advanced laboratory provides a web server, high-level database and information retrieval software, and multimedia authoring and display tools.
University Honors

Thomas W. Broadhead, Director
E. Michelle Blackwell, Assistant Director
www.acad.utk.edu/honors

The University Honors program is carefully designed to give academically outstanding students a special undergraduate honors experience comprising special courses, seminars, mentoring programs, senior research projects and other features. Students are invited to become University Honors students prior to enrolling at the University. Prospective University Honors students are selected on the bases of previous academic performance, demonstration of an eagerness to be active learners and leaders, and extracurricular activities. The University Honors Program is administered by the Director and Assistant Director with consultation by the University Honors Council which includes faculty and representatives of the University Administration.

University Honors Scholars are expected to pursue the highest levels of intellectual and personal achievement as members of the campus community. In addition to required work in their respective colleges, they are required to complete a minimum of four honors courses by the end of the sophomore year and a contract honors course in the student’s major during the junior year; successfully complete a one credit hour honors seminar each term in residence (summer not included); develop a positive relationship with a faculty mentor; have an extensive conference with a member of the University Honors staff each year; and complete the senior honors seminar and a senior honors project of merit and originality. Failure to meet the above requirements can result in removal from the program and loss of scholarship assistance.

ELIGIBILITY

Students who are the recipients of designated merit scholarships or who are transferring from other honors programs affiliated with the National Collegiate Honors Council are eligible to participate in the University Honors Program. Those awards are typically made to entering freshmen or transfer students and include competitive and guaranteed scholarships. Competitive scholarships include Honors Scholarships (Oldham, Whittle, and Manning Scholars) and University Scholarships (Bonham, Holt, Neyland, and Roddy). Competitive scholarships awarded by academic colleges include the Haslam (Arts and Sciences, Business Administration) and the McClanahan (Agricultural Sciences and Natural Resources). Criteria for selection of these awards include academic performance, academic and professional promise, involvement in school and community activities, and originality and creativity in the application essays. For all of these awards, the Application for Undergraduate Admission and Entering Freshmen Academic Scholarship Application must be submitted prior to November 1 of a student’s senior year in high school (for entering freshmen) or of a transfer student’s final year prior to attending the University of Tennessee. Recipients of Honors Scholarships and University Scholarships are Honors Scholars in the University Honors Program, and recipients of Haslam and McClanahan Scholarships are eligible to apply to become Honors Scholars.

Guaranteed scholarships available to entering freshmen, which include the Presidential, Tennessee Math Contest, African American Achiever, and Bicentennial, require submission of the completed Application for Undergraduate Admission prior to January 15 of the student’s senior year in high school. These awards are made primarily on the basis of students’ high school grades and test scores. All recipients of these guaranteed scholarships who have a minimum high school GPA of 3.5 and an ACT score of 27 (SAT of 1210) are invited to apply to join the University Honors Program as Honors Scholars.

The University’s most prestigious competitive scholarship awards are the Honors Scholarships which honor and recognize the generosity and leadership of friends and graduates of the University of Tennessee. The Oldham Scholarships are funded by a generous gift from Mr. and Mrs. Dortch Oldham. Mr. Oldham is a retired entrepreneur in the publishing industry. Each year, approximately three Oldham Scholarships are awarded to outstanding high school seniors.

Those students may pursue any academic major and are selected on the bases of leadership experience and skills, academic achievement, and citizenship. Students receive a substantial four-year scholarship that includes annual travel grants and a summer travel stipend. The Whittle Scholarships are made possible by a gift to the University by Chris Whittle, a 1969 alumnus. Each year, approximately ten outstanding high school seniors will be invited to be Whittle Scholars. Those students may pursue any major and are selected on the bases of leadership experience and skills, academic performance and potential, and extracurricular activities and community service. Whittle Scholars receive a substantial four-year scholarship that includes a stipend for an additional semester of study or internship abroad.

The Manning Scholarship honors 1998 alumnus Peyton Manning. Each year, an outstanding high school senior will be selected to be the Manning Scholar. That student may pursue any major and is selected on the bases of leadership experience, academic performance, and extracurricular activities and community service. Manning Scholars receive a substantial four-year scholarship that includes a stipend for an additional semester of study or internship abroad.

RETENTION IN THE UNIVERSITY HONORS PROGRAM

Scholars are selected on the bases of past academic performance; extracurricular activities, and their potential for academic excellence. As University Honors Scholars, they are expected to adhere to the written policies and requirements of the University Honors Program and are encouraged to enroll in courses that will stimulate and challenge them as well as broaden their horizons. As a result, the University Honors Program will not be concerned if grades in occasional courses fall below the superior range. However, University Honors Scholars are expected to maintain a cumulative grade point average of 3.25.

A student in the University Honors Program whose cumulative GPA falls below 3.25 will be allowed to continue in the Program and receive...
its benefits so long as he or she earns a 3.25 GPA or better every semester, thus eventually raising the cumulative GPA to the required 3.25. If, while the cumulative GPA is less than 3.25, a student fails to earn a 3.25 or better in any semester, he or she will be removed from the program and lose all of its benefits unless the student can demonstrate extenuating circumstances to the Director of University Honors.

SENIOR PROJECT DEADLINES IN THE UNIVERSITY HONORS PROGRAM

The following is a list of deadlines for the senior project in the University Honors Program:

1. No later than the end of the third year in residence, a student should choose a UT faculty member to serve as mentor for the senior research or creative project.
2. At the beginning of the fourth or final year in residence, a student must submit a written prospectus for the senior project to his/her faculty mentor for suggestions and approval.
3. During the final year in residence, each student must complete the Senior Honors Seminar, which consists of oral presentations and written samples of the student's senior research or creative project.
4. Prior to the end of a student's final semester, he or she will be expected to present the completed project to the student's faculty mentor or committee, the student's peers, and invited guests. Upon the conclusion of the presentation, the student's faculty mentor will submit a letter to the Director of the University Honors Program certifying that the project has been completed and has been approved. One copy of the project must be filed in the University Honors Office and additional copies should be given to the student’s faculty mentor and committee.

Failure to meet these guidelines will result in the delay of a student's graduation.

UNIVERSITY HONORS COURSES AND SEMINARS

Courses (3 credit hours) and seminars (1 credit hour) are offered each semester that focus on various topics, issues, and problems. Class size is generally limited to 20 students. These are taught by faculty from all ten undergraduate colleges and schools and may be repeated. University Honors courses are open to undergraduate students on the basis of high school GPA, ACT/SAT scores, UT GPA of 3.25 or better, or by professorial recommendation. University Honors seminars are required of and limited to students in the University Honors Program or by approval of the Director of University Honors. "Contract Honors" courses are required of and limited to students in the University Honors Program. Additional information is available from the University Honors Program office.
University Libraries

Barbara I. Dewey, Dean
Aubrey H. Mitchell, Associate Dean

Professors:

Associate Professors:

Assistant Professors:
Atkins, David P., M.A.L.S. Wisconsin; Behrend, Linda, M.S.L.S. Tennessee; Berry, Teresa, M.S.L.S. Tennessee; Johnson, Kay G., M.L.S. Pittsburgh; Kracker, Jacqueline, M.S.I.S. Tennessee; Manoff, Maribeth, M.L.S. South Carolina; Mellinger, Margaret, M.S.I.S. Tennessee; Purcell, Aaron, M.L.S., M.S. Maryland; Raladge, David, M.S.L.S. Tennessee; Read, Eleanor, M.S.I.S. Tennessee; Smith, Anthony D., M.S.I.S. Tennessee; Weber, Mary Ellen, M.L.I.S. Kentucky.

The University of Tennessee Libraries' own approximately 2.1 million volumes and subscribe to more than 16,400 periodicals and serial titles. The Libraries' membership in the Association of Research Libraries reflects the University's emphasis on graduate instruction and research and the support of large, comprehensive collections of library materials on a permanent basis.

The University Libraries consists of the main library (John C. Hodges Library), and four branches on the Knoxville campus (Agriculture-Veterinary Medicine Library, Map Library, Music Library, and Special Collections), and the Social Work Library in Nashville.

Research assistance is available at the reference desk in each library. Free self-searching of selected databases is also available in the reference area and remotely through the World Wide Web.

Users can search the catalog of holdings at any library branch or via the UT Libraries' Web site at www.lib.utk.edu. Materials that are not available in the UT Libraries can be requested through Interlibrary Services.

The services and facilities of the University Libraries are accessible to persons with disabilities. Adaptive equipment such as a Kurzweil Personal Reader and TDD are available at the Hodges Library.

The John C. Hodges Main Library (1015 Volunteer Boulevard) is a 350,000 square-foot facility housing collections in all subject areas. The Hodges Library has over 30 graduate student carrels, and 200 faculty studies, and comfortable study space for more than 2,000 people.

The Agriculture-Veterinary Medicine Library (Room A-113, Veterinary Teaching Hospital) has a strong collection in agriculture; veterinary, comparative and human medicine; and related biological sciences. Most of the publications of the U.S. Department of Agriculture and the State Agricultural Experiment Stations and Extension Services are collected.

The Map Library (Room 15, Basement of Hoskins Library, Cumberland Avenue and 15th Street) maintains and develops a collection of sheet maps, atlases, journals, and books related to cartography. Materials in print, film, and digital formats are acquired from commercial sources as well as the Government Depository program.

The Music Library (301 Music Building) has a comprehensive collection of music and music literature, including books, scores, audio and video recordings, current periodicals, and microfilm. All materials in the Library of Congress “M” classification are located here.

Special Collections (2nd Floor, West Wing, of the Hoskins Library) is a repository of primary source materials and costly modern library materials. The University Archives are also housed here. The Archives contain official records of the University; items published officially and unofficially by its units, departments and agencies; and other materials that document University of Tennessee life. Materials from Special Collections are paged for library users from closed stacks for use in the Reading Room.

The Social Work Library (1720 West End Avenue, Nashville) serves College of Social Work students in field practice across the state. The library has a working collection of materials in social work and related disciplines.

The Law Library on the Knoxville campus and the libraries located on the campuses in Chattanooga, Martin, Memphis, and Tullahoma are individually administered.

Each library of the University of Tennessee is accessible to all students and faculty of the university.

1Data describe the Knoxville campus, excluding the Law Library.
University Studies

Neil Greenberg, Chair

The University Studies Program has three general objectives: (1) to foster interdisciplinary teaching and scholarship, especially across college boundaries; (2) to promote active and integrative learning; and (3) to nurture the scholarly and creative development of faculty, staff, and students.

In pursuit of these objectives, University Studies sponsors several activities. Faculty Colloquies are ongoing, structured, interdisciplinary conversations on a topic or nexus of topics. Colloquies explore important contemporary issues which involve faculty and students from several disciplines and colleges. Advanced undergraduate and graduate students may attend by permission of colloquy coordinator.

Current colloquies include: Technology, Society; the Interdisciplinary Rhetoric Group; Psychoanalysis and the Humanities; Evolution and Culture; the Creative Group; the Critical Theory Group; Appalachian Forum; Cultural Diversity; Values in Higher Education; The Great Conversation; Spirituality and Health; and Intellectual Property. Colloquies continue as long as they have faculty involvement and new colloquies form each year.

Interdisciplinary Undergraduate Courses are innovative undergraduate offerings that are typically collaborative or team-taught. Most courses stem from the interdisciplinary Colloquy discussions. There are several honors offerings for undergraduates. In addition, University Honors students are encouraged to take a University Studies (200-level or higher) course during their first two years to help fulfill their four honors course requirement.

Centripetals are monthly faculty and staff luncheons held over the academic year designed to encourage conversation among faculty and staff about their creative and scholarly work. University Studies also works with other units across campus to facilitate visits by distinguished scholars of multidisciplinary interest. Such Visiting Scholars work with Faculty groups on specific projects, participate in interdisciplinary forums, or present special lectures.

For further information, contact:
Dr. Neil Greenberg, Chair
F239 Walters Life Science Building
PHONE: (865) 974-8177
FAX: (865) 974-2665
E-MAIL: unistudy@utk.edu
WEBSITE: http://www.bio.utk.edu/unistudy.nsf
Reserve Officers Training Corps (ROTC)

DEPARTMENT OF MILITARY SCIENCE AND TACTICS

ARMY ROTC

Professor of Military Science and Tactics: Lieutenant Colonel Bill Woodcock, M.S. University of Southern Mississippi.

Assistant Professors: Major Shawn Bleeker, B.S. University of New Hampshire; Lieutenant Colonel Ron Borden, B.S. Northern Michigan University; Captain William Edwards, B.A. San Diego State University; Major Robert Reed, B.S. Austin Peay State University.

Senior Army Instructors: SFC Jerry Blake; MSG Richard Coffman, B.S. Shepherd College; SGT Eldridge Cunningham; SFC Michael Mansfield; SSG Stephen Randolph.

MISSION
To commission the future officer leadership of the U.S. Army and motivate young people to be better citizens.

PURPOSE
Army ROTC is an educational program designed to provide the college student an opportunity to earn an Army commission as a Second Lieutenant while completing the University requirements for a bachelor's degree. The program provides education and training that will develop the skills and attitudes vital to the professional Army officer. Upon successful completion of the program and graduation from the University, graduates are commissioned as Second Lieutenants and enter either the active duty, Army Reserve, or Army National Guard.

ARMY ROTC AT THE UNIVERSITY OF TENNESSEE
The military program at the University of Tennessee predates that of any other state university in the country, having been introduced in 1844. In that year, Professor Albert Miller Lea, a U.S. military academy graduate, organized an infantry company. With the outbreak of the Mexican War, the entire company, as well as thousands of other Tennesseans, volunteered for service in the war. Thus, Tennessee became known as the "Volunteer State." When the University of Tennessee reopened after the War Between the States, a system of military discipline was adapted. A Code of Military Regulations was drawn up and a copy was provided each student when he matriculated. The whole institution was put under regular U.S. military academy discipline. The student body was organized into a battalion of cadets, which consisted of four companies fully officered, armed and equipped under the command of the commandant and his staff of cadet officers. The University of Tennessee remained as a Military Garrison for a period of six years, until 1877. Military Science continued to be taught, since the University was a Land Grant Institution and instruction in Military Science was required by the 1862 Act of Congress. The National Defense Act of 1916 changed the old military organization into a ROTC unit. For the first time, the Federal Government began to pay a part of the uniform cost for basic course students; uniforms and other equipment were provided by the Government for Juniors and Seniors, and a monthly subsistence allowance was given to advanced course students.

From 1928-1930, Major (later Brigadier General) Robert R. Neyland was the Professor of Military Science and football coach at the University of Tennessee predates that of any other state university in the country, having been introduced in 1844. In that year, Professor Albert Miller Lea, a U.S. military academy graduate, organized an infantry company. With the outbreak of the Mexican War, the entire company, as well as thousands of other Tennesseans, volunteered for service in the war. Thus, Tennessee became known as the "Volunteer State." When the University of Tennessee reopened after the War Between the States, a system of military discipline was adapted. A Code of Military Regulations was drawn up and a copy was provided each student when he matriculated. The whole institution was put under regular U.S. military academy discipline. The student body was organized into a battalion of cadets, which consisted of four companies fully officered, armed and equipped under the command of the commandant and his staff of cadet officers. The University of Tennessee remained as a Military Garrison for a period of six years, until 1877. Military Science continued to be taught, since the University was a Land Grant Institution and instruction in Military Science was required by the 1862 Act of Congress. The National Defense Act of 1916 changed the old military organization into a ROTC unit. For the first time, the Federal Government began to pay a part of the uniform cost for basic course students; uniforms and other equipment were provided by the Government for Juniors and Seniors, and a monthly subsistence allowance was given to advanced course students.

From 1928-1930, Major (later Brigadier General) Robert R. Neyland was the Professor of Military Science and football coach at the University of Tennessee. The Course is designed to develop and mentor "leaders of character," who, upon degree completion, will accept a commission in the U.S. Army. The Advanced Course requirement is that applicants have two academic years remaining at either the undergraduate or graduate levels, or a combination of both. Students normally enter the Advanced Course during the last two years of their degree program. (junior year for undergraduates, first year of masters program for graduate level students). The Advanced Course is made up of six Military Science classes (MS 310, 320, 400, 410, 420, 430) and takes two years to complete. All classes except MS 400 are offered during spring/fall semesters. MS 400 is a "paid" five-week summer camp held in Seattle, Washington.

Army ROTC develops students under the "whole person" concept. Cadets must maintain academic standards while taking on the additional responsibilities of ROTC. Advanced

THE PROGRAM

BASIC COURSE
Students entering the Basic Course register for classes at the same time and in the same manner as they enroll in their other college courses. All four classes (MS 110, 120, 210, 220) are available to any UT student as an elective course without any military obligation. Completion of the Basic Course or graduation from Basic Camp (MS 200) qualifies students for entry into the Advanced Course, which is normally taken during the last two years of college.

ADVANCED COURSE
The Course is designed to develop and mentor "leaders of character," who, upon degree completion, will accept a commission in the U.S. Army. The Advanced Course requirement is that applicants have two academic years remaining at either the undergraduate or graduate levels, or a combination of both. Students normally enter the Advanced Course during the last two years of their degree program. (junior year for undergraduates, first year of masters program for graduate level students). The Advanced Course is made up of six Military Science classes (MS 310, 320, 400, 410, 420, 430) and takes two years to complete. All classes except MS 400 are offered during spring/fall semesters. MS 400 is a "paid" five-week summer camp held in Seattle, Washington.

Army ROTC develops students under the "whole person" concept. Cadets must maintain academic standards while taking on the additional responsibilities of ROTC. Advanced
course students are required to participate in organized physical fitness sessions. Students enrolled in the Advanced Course are required to be full-time students, taking at least 12 hours each semester.

**PLACEMENT CREDIT AND COURSE SUBSTITUTION**

Placement credit and/or course substitution may be granted by the Professor of Military Science and Tactics on the basis of previous honorable active military service, participation in a Junior ROTC program, completion of MS 200, or completion of basic training and advanced individual training. A student may request placement credit for a portion or the entire Basic Course. Military Science courses taken at other colleges or universities are transferable as approved by the Professor of Military Science and Tactics.

Military Science 200 is a "paid" five-week summer camp offered to any University of Tennessee student without any military obligation. Students completing this course receive four academic credits, qualify for the Advanced Course by receiving Basic Course credit, and can compete for two years of academic "tuition" scholarships.

**REQUIRED FOR ENROLLMENT AND CONTINUANCE**

The general requirements for enrollment and continuance in the Army ROTC program are:

1. Basic Military Studies
   a. Be a citizen of the United States.
   b. Be physically qualified.
   c. Freshman and Sophomore standing. Student with higher standing requires consent of instructor.

2. Advanced Military Studies Cadets applying for enrollment in the Advanced ROTC program who seek a Commission must:
   a. Have successfully completed Military Science 110, 120, 210, 220 or have accounted for one of the following: Prior Military Service, ROTC Basic Military Studies—Practicum (MS 200), 3-Year High School ROTC Basic Course.
   b. Have two years remaining at the University (either undergraduate, graduate or in pursuit of additional course work).
   c. Have completed a minimum of 55 semester hours.
   d. Be under 30 years old at time of enrollment.
   e. Be enrolled as a full-time student, either at the University of Tennessee or at a nearby institution in a partnership program.
   f. Meet military screening and physical requirements.
   g. Maintain a 2.0 G.P.A.
   h. Maintain B average in Military Science Courses as a scholarship student.

NOTE: Regularly enrolled students who meet the academic prerequisites may take individual courses as electives with the permission of the department head and academic advisor.

**REQUIREMENTS FOR ALL MILITARY SCIENCE COMMISSIONEES**

The following Military Science (MS) Advanced Course Curriculum must be successfully completed:

- Military Science 310 (4)—Advanced Military Studies I
- Military Science 320 (4)—Advanced Military Studies II
- Military Science 400 (4)—Advanced Camp Practice
- Military Science 410 (4)—Command and Staff Functions
- Military Science 420 (4)—Military Ethics and Law
- Military Science 430 (3)—U.S. Military History

In addition to a baccalaureate degree, there are required and recommended courses in designated fields of study that students must complete prior to commissioning. Students must meet these prerequisites by successful completion of required and elective courses taken from the university curriculum in the required areas of concentration.

Courses in the following designated fields of study are required of students seeking a commission in the United States Army:

- a. One course in written communications.
- b. One course in human behavior.
- c. One course in math reasoning.
- d. One course in computer literacy.

Courses in management and national security studies are strongly recommended but are not required.

**SPECIAL PROGRAMS**

Pay and Entitlements All students enrolled in the Army ROTC program are furnished texts by the Army through the Military Property Officer. Students enrolled in the ROTC Advanced Course receive uniforms and equipment plus a monthly allowance during the academic year. While attending the ROTC summer studies each cadet receives approximately $740 for Advanced Summer Studies, $740 for Basic Summer Studies, plus meals and clothing are provided.

**Army ROTC Scholarship Program**

The Army ROTC scholarship program offers financial assistance to outstanding young men and women in Army ROTC who are interested in the Army as a career. Each scholarship provides for free tuition, textbooks subsidy, and laboratory fees in addition to a monthly subsistence allowance for the period that the scholarship is in effect. Scholarships may be awarded for either two, three or four years. High school seniors should contact their guidance counselors early in August or September of their senior year to apply for the four-year scholarship. Two and three-year scholarship applicants should contact the Professor of Military Science for further information. Other privately financed scholarships and grants are also available to ROTC cadets.

**LEADERSHIP GRANT PROGRAM**

The University of Tennessee ROTC Leadership Grants are designed to attract and retain high quality/caliber students to the Army ROTC program for future positions of leadership within the service and our country. These grants are intended to complement other ROTC and University scholarships by providing funds to offset costs for such areas as: room and board; out-of-state tuition; and first year expenses for Army ROTC scholarship winners.

Up to ten (10) $1,000 Leadership Grants are available each year and are available to scholarship winners and any full-time student enrolled in the AROTC program. Awarding of these Leadership Grants will be determined by the Professor of Military Science and Tactics who will evaluate each candidate in the following areas: ACT/SAT scores; leadership activities; and recommendations from high school personnel and community leaders.

**Simultaneous Membership Program**

The "SMP" option combines the Army ROTC living allowance with membership in the Army Reserve or Army National Guard and allows the student to receive pay from both programs. ROTC cadets serve as "officer-trainees" in direct leadership/management positions. SMP participation with National Guard or reserve forces is one weekend per month and two weeks each year.

**Branch Selection**

The curriculum of the Army ROTC Program is designed to qualify the cadet for appointment as an officer. Selection for assignment to the various branches of the Army is based upon: the personal interests of the cadet; the major course of study; academic accomplishments; leadership potential; and the needs of the Service. Under this system a cadet may be commissioned in any branch for which he or she is qualified and in which a need for officers exists. After graduation and commissioning, the officer will attend a service school for further specialized military training which will qualify him or her for the branch to which he or she is assigned.

**Extra Curricular Activities**

Numerous military-related activities are available to cadets throughout the school year. These include the Tennessee Rangers, Scabbard and Blade, and UT Color Guard. These organizations provide both student to student contact and a valuable opportunity to acquire military skills. Additionally, each term, a number of Field Training Exercises are conducted to develop such military skills as Small Unit Tactics.

**Physical Fitness Training**

The Cadet Battalion conducts physical fitness training Monday-Wednesday-Friday from 6:30 a.m. to 7:30 a.m. The exercises focus on flexibility, muscular strength, and cardiorespiratory endurance. Any UT student may take the course by registering for Army Conditioning Program 130.

**MILITARY SCIENCE CURRICULUM**

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<thead>
<tr>
<th>Hours Credit</th>
<th>Normal Course</th>
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<tr>
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<td>Freshman</td>
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<td></td>
<td>Military Science 110, 120</td>
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<td>Military Science 130</td>
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<td>Military Science 210, 220</td>
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<td>Military Science 130</td>
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<td>Junior</td>
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<td>Military Science 310, 320</td>
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<td>Military Science 130</td>
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<td>Senior</td>
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<td>Military Science 410, 420, 430</td>
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<td>Military Science 130</td>
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</table>

Total: 32 hours
BASIC MILITARY STUDIES — PRACTICUM

SUMMER
Sophomore
Military Science 200 .................................................. 4
Junior
Military Science 400 .................................................. 4
Total: 8 hours

Variations to these sequences of study may be approved by the Professor of Military Science on a case-by-case basis. Lower division credit hours granted by the University for military service are dependent upon time spent in service and service schools attended.

PROGRESSION REQUIREMENTS

1. Minimum semester hours/GPA for entrance into Basic Military Studies—Practicum (Military Science 200): 30 semester hours/2.00 GPA.
2. Minimum overall GPA for entrance into the advance course (Military Science 310, 320, 400, 410, 420, 430): 2.00.
3. Minimum GPA in Military Science Courses: 2.00.
4. Minimum overall GPA for commissioning: 2.00.
5. Semester counseling sessions with military advisor required for Advance Course and scholarship students only.

DEPARTMENT OF AIR FORCE

AIR FORCE ROTC PROGRAM

Professor of Air Force Aerospace Studies: Colonel Charles F. Schreck, Head, M.A.
Webster University

Assistant Professors:
Captain Stephen Hunter, M.A.S. Embry Riddle University; Captain Patrick Stephens, M.S. Embry-Riddle University; Lieutenant Colonel Stan Shradar, M.A.S. Golden Gate University.

PURPOSE

The Air Force Reserve Officers Training Corps (AFROTC) is an educational program designed to provide the college student an opportunity to earn an Air Force commission as a Second Lieutenant while completing the University requirements for a bachelor’s degree. The program provides education that will develop the skills and attitudes vital to the professional Air Force officer. Upon successful completion of the program and graduation from the University, students are commissioned as Second Lieutenants and enter active duty.

THE PROGRAMS

The Four-Year Program: Students entering the Four-Year Program may register for the program at the same time and in the same manner as they enroll in their other college courses and there is no military obligation. During their freshman and sophomore years, students enroll in the General Military Course (GMC). They then may compete for entry into the Professional Officer Course (POC) which is normally taken during the last two years of college. Selection into the POC is highly competitive and is based on being medically qualified; physically fit; term and cumulative grade point averages; scores achieved on the Air Force Officer Qualifying Test (AFOQT); successful completion of a four-week field training course at an Air Force base; and the recommendation of the Professor of Aerospace Studies.

The Two-Year Program: The Two-Year Program consists of the Professional Officer Course (POC) in the last two years of the Four-Year Program. It is designed to provide greater flexibility to meet the needs of students desiring Air Force opportunities. The basic requirement is that applicants have two academic years remaining at either the undergraduate or graduate levels, or a combination of both. After being nominated by the Professor of Aerospace Studies, applicants seeking enrollment in the Two-Year Program are evaluated using the same criteria used for the four-year program except the length of the field training course is five weeks. Additionally, every POC applicant must agree to take and successfully complete a course in mathematical reasoning or its equivalent before graduation and commissioning. Courses previously completed may be used to satisfy this requirement.

Since the processing procedure must be completed several months in advance of intended enrollment, interested students must apply early in the fall semester of the academic year preceding the fall term in which they intend to enter the program. Application should be made in person to the Department of Aerospace Studies.

AFROTC develops students under the “whole person” concept. Cadets must maintain academic standards while taking on the additional responsibilities of AFROTC. These responsibilities include being physically fit, of good moral character, acting responsibly and with integrity. Cadets normally organize about two hours per week of physical activity outside of class requirements.

WOMEN IN AFROTC

AFROTC at the University of Tennessee has been coeducational since 1970. Women complete the same courses as men and have the same opportunities. Upon successful completion of the AFROTC program and degree requirements, women are commissioned in the Air Force as Second Lieutenants.

Pay and job opportunities are equal for women and men. Virtually all career fields in the Air Force are open to women, including pilot and navigator positions.

SCHOLARSHIP PROGRAM

Air Force ROTC Scholarships are available to qualified applicants in both the Four- and Two-Year Programs. Each scholarship provides full tuition, laboratory and incidental fees, and book fee. In addition, scholarship cadets receive a non-taxable stipend ranging from $200 to $400 each month during the school year while on scholarship status.

High School Students

Competitive four-year scholarships are available to high school students who enroll in certain scientific and engineering career fields. Some scholarships are also available to students who enroll in certain non-technical majors. Four-year scholarship applications are contained in the Air Force ROTC Four-Year College Scholarship Program Application Booklet. Booklets may be obtained directly from Air Force ROTC Public Affairs, Maxwell, AFB, AL 36112 or from any high school counselor.

College students: Other scholarship opportunities exist for students already in college. Some scholarships are available on a competitive basis and the student must have at least four, three, or two undergraduate or graduate years of study remaining in order to compete. Applications for these scholarships should be made directly to the Department of Aerospace Studies.

LEADERSHIP GRANT PROGRAM

The University of Tennessee AFROTC Leadership Grants are designed to attract and retain high quality students to the Air Force ROTC program for future positions of leadership within their service and our country. These grants are intended to complement other AFROTC and University scholarships by providing funds to offset costs for such areas as: room and board; out-of-state tuition; and first year expenses for 3-year AFROTC scholarship winners.

Up to ten (10) $1,000 Leadership Grants are available each year and are open to 3- and 4-Year scholarship winners and any full-time student enrolled in the AFROTC program. Awarding of these Leadership Grants will be determined by the Professor of Aerospace Studies who will evaluate each candidate in the following areas: ACT/SAT scores; AFOQT test scores; GPA; physical fitness scores; leadership activities; and recommendations from people who can attest to the applicant’s leadership experience and skills.

PAY AND ENTITLEMENTS

All cadets enrolled in AFROTC are furnished texts and uniforms. Qualified sophomore, junior, and senior cadets with a cumulative grade point average (GPA) of 2.0 or its equivalent before graduation and commissioning receive a $1,500 scholarship that is applied toward their tuition and books. Additionally, these cadets receive a monthly stipend ranging from $200 to $450. In addition, they are paid mileage to and from field training, plus pay commensurate with active duty rates while at field training.

ACTIVE DUTY COMMITMENTS

Commissioned graduates going into non-flying duties will be required to serve four years of active duty. Those graduates going into pilot assignments will be required to serve ten years active duty after completion of pilot training. Those graduates going into navigator assignments will be required to serve six years active duty after completion of navigator training.

This information is subject to change. For the most up-to-date information regarding AFROTC, contact AFROTC Detachment 800, 974-3041.
AIR FORCE AEROSPACE STUDIES CURRICULUM

To receive a commission as a 2nd Lieutenant in the United States Air Force through the Air Force ROTC program, a student must successfully complete a 4- or 5-week Field Training encampment and take or receive credit for the following courses. Attendance at a 5-week Field Training encampment satisfies all freshman and sophomore level course requirements.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours/Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td></td>
</tr>
<tr>
<td>Aerospace Studies 101, 102</td>
<td>1,1</td>
</tr>
<tr>
<td>Aerospace Studies 103, 104</td>
<td>(Leadership Laboratory) 1.1 (s/nc)</td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
</tr>
<tr>
<td>Aerospace Studies 201, 202</td>
<td>1,1</td>
</tr>
<tr>
<td>Aerospace Studies 202, 204</td>
<td>(Leadership Laboratory) 1.1 (s/nc)</td>
</tr>
<tr>
<td>Junior</td>
<td></td>
</tr>
<tr>
<td>Aerospace Studies 301, 302</td>
<td>3,3</td>
</tr>
<tr>
<td>Aerospace Studies 303, 304</td>
<td>(Leadership Laboratory) 0.0</td>
</tr>
<tr>
<td>Senior</td>
<td></td>
</tr>
<tr>
<td>Aerospace Studies 401, 402</td>
<td>3,3</td>
</tr>
<tr>
<td>Aerospace Studies 403, 404</td>
<td>(Leadership Laboratory) 0.0</td>
</tr>
</tbody>
</table>

PROFESSIONAL DEVELOPMENT TRAINING PROGRAMS

To help cadets gain knowledge of the challenges in leadership and human relations encountered by a junior Air Force officer and to motivate them toward an Air Force career, cadets have the opportunity to participate in a variety of summer professional development training programs. Some of these programs are:

- Academy Freefall Parachute Training A 12-day program conducted at the US Air Force Academy—successful completion of program results in cadet receiving parachutist rating.

- Air Force Academy Soaring A 15-day program designed to give cadets the chance to experience the basic fundamentals of flight in non-powered glider operations. Cadets receive instruction in basic flight through ground school and actual flight, leading up to and possibly including cadet solo.

- Army Airborne Training Training lasts for 24 days and is physically and mentally demanding. Upon successful completion, cadets are awarded the parachutist rating. All training is conducted at Fort Benning, Georgia.

- ASSIST Rising sophomore cadets spend two weeks touring an active duty Air Force base and ‘shadowing’ junior officers in various career fields.

- British Exchange Cadets are attached to a British University Air Squadron for 17 days of training and orientation at various Royal Air Force Bases in the United Kingdom.

- Combat Survival Training A 20-day program incorporating combat, basic aircrew, and water survival training. Training is conducted at the US Air Force Academy, Colorado Springs, Colorado.

- Field Engineering and Readiness Lab Provides opportunities for cadets with entry level civil engineering courses to get hands-on work experience in the Civil Engineering career field. Training consists of two weeks working with Civil Engineering at an Air Force base and three weeks hands-on construction activities at the Air Force Academy, Colorado Springs, Colorado.

- Foreign Language Immersion Provides cadets majoring in a foreign language the opportunity to receive intensive language and cultural training. Training lasts for four weeks in various overseas countries.

- Nurse Orientation Program During a four-week internship program at Wilford Hall USAF Medical Center, Lackland AFB Texas, nursing cadets receive hands-on experience and practical knowledge of Air Force nursing.

- Operation Air Force A three-week program of general orientation and ‘shadowing’ of junior officers in various career fields. Program conducted at Air Force installations throughout the United States and overseas.

- Pentagon Internship Program A three-week program to provide cadets an opportunity to work in the Pentagon. Students selected for the program gain problem-solving experience working with both military and civilian personnel on real world issues and participate as a team member with professionals in their chosen field of study.
THE COLLEGE OF LAW

Thomas C. Galligan, Jr., Dean
John Sobieski, Jr., Associate Dean
Rachael E. Inman, Assistant Dean

The College of Law has, since 1890, continuously sought to provide high quality legal education in a University community. The college offers a professional curriculum leading to the degree of Doctor of Jurisprudence. Two dual degree programs are available in conjunction with the College of Law: the J.D.-MBA program with the College of Business Administration and J.D.-M.P.A. program with the Department of Political Science.

Information regarding admission, financial aid, academic policies, extracurricular activities, and student services is available from the Admissions Office, The University of Tennessee, College of Law, 1505 W. Cumberland Avenue, Knoxville, Tennessee 37996-1810. The completed application should be received before February 1 of the year of requested admission.

COLLEGE OF VETERINARY MEDICINE

Michael J. Blackwell, Dean
James J. Brace, Associate Dean

The College of Veterinary Medicine, established in 1974, offers a professional curriculum leading to the degree of Doctor of Veterinary Medicine (D.V.M.). The college offers graduate studies leading to the degrees of Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) with a major in Comparative and Experimental Medicine. Residency training programs in the various clinical specialties are also offered.

The Graduate Catalog contains complete information concerning the programs in the college. Forms and instructions for making application for admission may be obtained beginning June 1 from the Office of the Associate Dean, The University of Tennessee, College of Veterinary Medicine, 2407 River Drive, Room A102, Knoxville, Tennessee 37996-4550. Applications must be received by the Veterinary Medical College Application Service (VMCAS) by November 1 of the year prior to requested admission. All pre-veterinary requirements must be completed by the end of the spring term of the year in which the student plans to enroll in the college.

THE GRADUATE SCHOOL

Anne Mayhew, Vice Provost and Dean of Graduate Studies
S. Kay Reed, Assistant to the Dean

The University of Tennessee is the land-grant institution of the State of Tennessee with its main campus in Knoxville. UT is the state's largest and most comprehensive institution, and is a Carnegie One Research Extensive institution. A wide range of graduate programs leading to the Master’s and doctoral degrees is available. The University offers Master’s programs in 76 fields of specialization and doctoral work in 44. Approximately 6,000 graduate students are enrolled, both on and off campus.

The Graduate School administration develops procedures to implement policies formulated by the Graduate Council, and has primary responsibility for Graduate School admissions and records. Much of the day-to-day administration of graduate study is conducted by department heads or faculty advisors and committees responsible for particular programs. In addition to departmental units, numerous interdisciplinary programs, institutes and centers have been developed on campus and in locations throughout the state.

The Graduate School brings together faculty and graduate students as a community of scholars with a common interest in creative work and advanced study. Graduate programs are available to students desiring full-time study toward the Master’s and doctoral degrees or professional certification, those interested in continuing education for updating and broadening knowledge, and those pursuing postdoctoral research.

Complete information concerning graduate study at the University of Tennessee is available in the Graduate Catalog published annually. For a copy, write, call, or visit the Office of Graduate Student Services, 218 Student Services Building, The University of Tennessee, Knoxville, Tennessee 37996-0220, telephone 974-3251, fax 974-6541, e-mail: gsinfo@utk.edu, website: http://web.utk.edu/~gsinfo.
## MAJORS AND DEGREE PROGRAMS

<table>
<thead>
<tr>
<th>College of Agricultural Sciences and Natural Resources and Extension Education</th>
<th>DEGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Economics</td>
<td>M.S.</td>
</tr>
<tr>
<td>Animal Science</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Biosystems Engineering</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Biosystems Engineering Technology</td>
<td>M.S.</td>
</tr>
<tr>
<td>Entomology and Plant Pathology</td>
<td>M.S.</td>
</tr>
<tr>
<td>Food Science and Technology</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Forestry</td>
<td>M.S.</td>
</tr>
<tr>
<td>Natural Resources</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Ornamental Horticulture and Landscape Design</td>
<td>M.S.</td>
</tr>
<tr>
<td>Plant and Soil Sciences</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Wildlife and Fisheries Science</td>
<td>M.S.</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>College of Architecture and Design</th>
<th>DEGREE</th>
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</thead>
<tbody>
<tr>
<td>Architecture</td>
<td>M.Arch.</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>College of Arts and Sciences</th>
<th>DEGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthropology</td>
<td>M.A., Ph.D.</td>
</tr>
<tr>
<td>Art</td>
<td>M.F.A.</td>
</tr>
<tr>
<td>Audiology</td>
<td>M.A.</td>
</tr>
<tr>
<td>Biochemistry and Cellular and Molecular Biology</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Botany</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Chemistry</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Computer Science</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Ecology and Evolutionary Biology</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>English</td>
<td>M.A., Ph.D.</td>
</tr>
<tr>
<td>French</td>
<td>M.A.</td>
</tr>
<tr>
<td>Geography</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Geology</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>German</td>
<td>M.A.</td>
</tr>
<tr>
<td>History</td>
<td>M.A., Ph.D.</td>
</tr>
<tr>
<td>Life Sciences</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Mathematics</td>
<td>M.Math., M.S., Ph.D.</td>
</tr>
<tr>
<td>Microbiology</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Modern Foreign Languages</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Music</td>
<td>M.Mus.</td>
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<tr>
<td>Philosophy</td>
<td>M.A., Ph.D.</td>
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<tr>
<td>Physics</td>
<td>M.S., Ph.D.</td>
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<tr>
<td>Planning</td>
<td>M.S.P.</td>
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<tr>
<td>Political Science</td>
<td>M.A., Ph.D.</td>
</tr>
<tr>
<td>Psychology</td>
<td>M.A., Ph.D.</td>
</tr>
<tr>
<td>Public Administration</td>
<td>M.P.A., J.D.-M.P.A.</td>
</tr>
<tr>
<td>Sociology</td>
<td>M.A., Ph.D.</td>
</tr>
<tr>
<td>Spanish</td>
<td>M.A.</td>
</tr>
<tr>
<td>Speech and Hearing Science</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Speech Pathology</td>
<td>M.A.</td>
</tr>
<tr>
<td>Theatre</td>
<td>M.F.A.</td>
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</table>

<table>
<thead>
<tr>
<th>College of Business Administration</th>
<th>DEGREE</th>
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</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>M.Acc.</td>
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<tr>
<td>Business Administration</td>
<td>M.B.A., J.D.-M.B.A., M.S.-M.B.A., Ph.D.</td>
</tr>
<tr>
<td>Economics</td>
<td>M.A., Ph.D.</td>
</tr>
<tr>
<td>Industrial and Organizational Psychology</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Management Science</td>
<td>M.S., Ph.D.</td>
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<tr>
<td>Statistics</td>
<td>M.S.</td>
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<table>
<thead>
<tr>
<th>College of Communications</th>
<th>DEGREE</th>
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</thead>
<tbody>
<tr>
<td>Communications</td>
<td>M.S., Ph.D.</td>
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<table>
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<tr>
<th>College of Education</th>
<th>DEGREE</th>
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<tbody>
<tr>
<td>College Student Personnel</td>
<td>M.S.</td>
</tr>
<tr>
<td>Counseling</td>
<td>M.S.</td>
</tr>
<tr>
<td>Education</td>
<td>M.S., Ed.S., Ed.D., Ph.D.</td>
</tr>
<tr>
<td>Educational Administration and Policy Studies</td>
<td>M.S.</td>
</tr>
<tr>
<td>Educational Psychology</td>
<td>M.S.</td>
</tr>
<tr>
<td>Human Performance and Sport Studies</td>
<td>M.S.</td>
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</table>

<table>
<thead>
<tr>
<th>College of Engineering</th>
<th>DEGREE</th>
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<tbody>
<tr>
<td>Aerospace Engineering</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Engineering Science</td>
<td>M.S., M.S.-M.B.A., Ph.D.</td>
</tr>
<tr>
<td>Environmental Engineering</td>
<td>M.S.</td>
</tr>
<tr>
<td>Industrial Engineering</td>
<td>M.S., M.S.-M.B.A.</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>M.S., M.S.-M.B.A., Ph.D.</td>
</tr>
<tr>
<td>Materials Science and Engineering</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Nuclear Engineering</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Polymer Engineering</td>
<td>M.S., Ph.D.</td>
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</table>

<table>
<thead>
<tr>
<th>College of Human Ecology</th>
<th>DEGREE</th>
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<tbody>
<tr>
<td>Child and Family Studies</td>
<td>M.S.</td>
</tr>
<tr>
<td>Health Promotion and Health Education</td>
<td>M.S.</td>
</tr>
<tr>
<td>Human Ecology</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Human Resource Development</td>
<td>M.S.</td>
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<tr>
<td>Nutrition</td>
<td>M.S.</td>
</tr>
<tr>
<td>Public Health</td>
<td>M.P.H.</td>
</tr>
<tr>
<td>Recreation, Tourism, and Hospitality Management</td>
<td>M.S.</td>
</tr>
<tr>
<td>Safety</td>
<td>M.S.</td>
</tr>
<tr>
<td>Textiles, Retailing and Consumer Sciences</td>
<td>M.S.</td>
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</table>

<table>
<thead>
<tr>
<th>Intercollegiate</th>
<th>DEGREE</th>
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<tbody>
<tr>
<td>Aviation Systems (UTSI only)</td>
<td>M.S.</td>
</tr>
<tr>
<td>Comparative and Experimental Medicine</td>
<td>M.S., Ph.D.</td>
</tr>
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<thead>
<tr>
<th>College of Law</th>
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<tbody>
<tr>
<td>Law</td>
<td>J.D., J.D.-MBA, J.D.-M.P.A.</td>
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<table>
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<tr>
<th>College of Nursing</th>
<th>DEGREE</th>
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</thead>
<tbody>
<tr>
<td>Nursing</td>
<td>M.S.N., Ph.D</td>
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<table>
<thead>
<tr>
<th>College of Social Work</th>
<th>DEGREE</th>
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<tbody>
<tr>
<td>Social Work</td>
<td>M.S.S.W., Ph.D.</td>
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<table>
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<tr>
<th>College of Veterinary Medicine</th>
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<tbody>
<tr>
<td>Veterinary Medicine</td>
<td>D.V.M.</td>
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<table>
<thead>
<tr>
<th>School of Information Sciences</th>
<th>DEGREE</th>
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</thead>
<tbody>
<tr>
<td>Information Sciences</td>
<td>M.S.</td>
</tr>
</tbody>
</table>
Continuing Education

University Outreach and Continuing Education

Robert Leiter, Associate Vice Chancellor and Dean
Norvel L. Burkett, Associate Dean of Non-Credit Programs
Gayle Cooper, Assistant Dean, New College
Robert Jackson, Assistant Dean for Technology and Development
M.K. Warden, Assistant Dean for Credit Programs

The University of Tennessee is committed to its land-grant mission of public service. The institution meets that mission by extending its continuing education services and programming resources through outreach initiatives. University Outreach and Continuing Education works with UT academic departments to offer courses, educational services and programs to students, teachers and faculty. The division offers programs using a variety of modes, helping people of all ages achieve degrees and certificates, accomplish professional development goals, and pursue recreational and intellectual interests.

Programs and courses are based upon student needs and desires, whether for self-motivated learning; for leisure and recreational programs; or for professional promotion, certification, licensure, relicensure, or mid-career changes. The Division provides these educational opportunities through program coordination and development of the six departments: Department of Conferences, Department of Distance Education and Independent Study, English Language Institute, University Evening School, Summer School and Special Programs, and UT Professional and Personal Development. Specific programs and services of each department are described on the following pages.

For more information, contact:
University Outreach and Continuing Education
1534 White Avenue
Knoxville, TN 37996-1526
Phone: (865) 974-3181
FAX: (865) 974-6629
E-mail: outreach@utk.edu
Website: www.outreach.utk.edu

DEPARTMENT OF CONFERENCES

Associate Dean of Non-Credit Programs and Director:
Norvel Burkett, Ed.D. Mississippi State University
Assistant Director:
Robert Gibbs, B.S. Tennessee
Program Coordinator:
Susan Davis, B.S. Tennessee
Conference Specialists:
Jeremy Easterday, B.S. Tennessee
Margaret Harris, B.S. Missouri
Barry Neal, B.S. Tennessee

UT Conferences, housed in the Conference Center Building in downtown Knoxville, provides management services to UT departments and faculty or outside groups who desire to hold a conference or meeting in Knoxville or anywhere in the United States. Utilizing the UT Conference Center, major hotels and convention centers across Tennessee and the U.S., UT Conferences assists organizations in designing and managing programs to meet the needs of attendees. The staff provides professional guidance and management for small group meetings as well as for major conventions of several thousand delegates. Consulting and support services can include planning and budgeting, lodging, food services, promotional materials, registration, meeting site management, and all details to ensure a successful event. Some programs qualify for Continuing Education Units (CEUs), which become a permanent record maintained by the Division.

Professional groups and interested individuals can request interactive videoconferencing to locations worldwide. Arrangements can also be made to receive (downlink) programming or transmit (uplink) programming via satellite.

Additional information may be obtained from:
UT Conferences
P.O. Box 2648
Knoxville, TN 37901
Phone: (865) 974-0250
FAX: (865) 974-0264.
E-mail: conferences@utk.edu
Website: www.conferences.utk.edu

ENGLISH LANGUAGE INSTITUTE

Director:
Dale A. Myers, Ph.D. Florida
Assistant Director:
Jan G. Hilt, M.S. Tennessee
Instructors:
Anwar F. Accawi M.Ed. Tennessee
Mostafa Rahbar, M.Ed. Tennessee

The English Language Institute (ELI) is a non-credit language-study program of The University of Tennessee, Knoxville. It is designed to assist students in their pursuit of career goals or educational objectives in the United States.

The curriculum consists of eight proficiency levels: 101-108, Introductory through Pre-Academic.

Classes meet 3-5 periods each day with emphasis on the following:
- English Structure (Grammar)
- Listening Comprehension
- Writing/Composition (Rhetoric)
- Conversation Practice for Communicative Purposes
- Reading and Vocabulary
In addition, classes also assist students in pronunciation, test-taking strategies, U.S. culture orientation, and university study skills. Additional information may be obtained at: English Language Institute
907 Mountcarril Street
Knoxville, Tennessee 37996-3505
Phone: (865) 974-3404
FAX: (865) 974-6383
E-mail: eli@utk.edu
Website: www.outreach.utk.edu/ELI

UT PROFESSIONAL AND PERSONAL DEVELOPMENT

Acting Director:
Norvel Burkett, Ed.D. Mississippi State University

Assistant Director:
Nissa Dahlin-Brown, M.S. Tennessee University

Coordinator:
Mary F. Jerger, M.S. Eastern Michigan University

UT Professional and Personal Development provides a comprehensive array of non-credit courses, certificate programs, and seminars designed to serve the needs of individuals and businesses in Knoxville and surrounding communities. Courses are offered on the University campus, at off-campus locations, and on-line. Courses are taught by University faculty, staff, and community experts. Courses also are delivered “on-site” for business clients, with instructional services tailored to the needs of each individual group.

Business topics include professional development, career planning, computer training, and small business development. Personal interest topics range from business and computer technology, technical sales, and instructional technology, network systems engineering, administrative technology, technical sales, and instructional technology. The department provides services and support for faculty, students, and industry interested in flexibly-delivered education. It also provides the support infrastructure for UT New College.

The department also administers the program of Independent Study by correspondence for all campuses of the University. The program includes undergraduate college credit courses, high school courses (for credit or for college entrance requirements), and non-credit courses. College credit correspondence courses are based on regular UT campus courses, and the credit is recorded on the student’s UT transcript. High school courses are based on the curriculum frameworks of the Tennessee Department of Education. Non-credit courses can be taken to meet personal or professional education goals. The courses utilize videotapes, audiotapes, CD-ROMs, and web-delivery as well as traditional print materials. The program is open to UT students and to anyone who has the educational preparation required for a particular course. UT students must have the approval of their college advising center before they enroll in college credit courses. With the cooperation of a UT instructor, independent study through directed readings may also be arranged through this department for courses not listed in the Independent Study catalog (available online at: anywhere.tennessee.edu).

The Internet eLearning Institute provides certificate programs, professional development courses, and training for information technology professionals or individuals wanting expertise in internet technology. Courses are offered over the world wide web in the areas of e-Commerce, web databases, webmastering, network systems engineering, administrative technology, technical sales, and instructional technology.

For further information or to register, contact:
UT Professional and Personal Development
105 Conference Center Building
Knoxville, TN 37996-4110
Phone: (865) 974-0150
FAX: (865) 974-0154
E-mail: ProfessionalPgms@utk.edu
Website: www.outreach.utk.edu/pdp

DEPARTMENT OF DISTANCE EDUCATION AND INDEPENDENT STUDY

Assistant Dean and Director:
Robert Jackson, MBA Tennessee

The Department of Distance Education and Independent Study, in concert with academic departments at UT, offers internet-based, web-delivered classes, certificates and degrees. Information Services, Nuclear Engineering, and the College of Business offer flexibly-delivered Masters degrees, while the Department of Statistics and the Department of Counseling, Deafness, and Human Services offer credit certificate programs. Other undergraduate and graduate classes and programs are in development and a variety of individual courses in many disciplines are available. Current course availability can be found on the Web at anywhere.tennessee.edu.

The department provides services and support for faculty, students, and industry interested in flexibly-delivered education. It also provides the support infrastructure for UT New College.

The department also administers the program of Independent Study by correspondence for all campuses of the University. The program includes undergraduate college credit courses, high school courses (for credit or for college entrance requirements), and non-credit courses. College credit correspondence courses are based on regular UT campus courses, and the credit is recorded on the student’s UT transcript. High school courses are based on the curriculum frameworks of the Tennessee Department of Education. Non-credit courses can be taken to meet personal or professional education goals. The courses utilize videotapes, audiotapes, CD-ROMs, and web-delivery as well as traditional print materials. The program is open to UT students and to anyone who has the educational preparation required for a particular course. UT students must have the approval of their college advising center before they enroll in college credit courses. With the cooperation of a UT instructor, independent study through directed readings may also be arranged through this department for courses not listed in the Independent Study catalog (available online at: anywhere.tennessee.edu).

The Internet eLearning Institute provides certificate programs, professional development courses, and training for information technology professionals or individuals wanting expertise in internet technology. Courses are offered over the world wide web in the areas of e-Commerce, web databases, webmastering, network systems engineering, administrative technology, technical sales, and instructional technology.

For information and registration forms, contact the Distance Education Program at:
Department of Distance Education and Independent Study
1534 White Avenue
Knoxville, TN 37996-1525
Phone: (865) 974-9014 or (1-866) UT New 4 U
Website: www.anywhere.tennessee.edu
E-mail: DistEducation@utk.edu
Website: www.outreach.utk.edu/ELI

NEW COLLEGE

Assistant Dean:
Gayle Cooper, Ph.D. Tennessee

University of Tennessee New College will lead Tennessee economic development and improve quality of life by providing exemplary education beyond campus borders. UT New College offers academic programs off-campus to students at convenient times and places. The primary mission of New College is to help Tennesseans complete a college degree without leaving their families, communities, and careers.

To accomplish its mission, New College offers online academic programs from the University of Tennessee campuses. By providing a single portal, it is easy for citizens of the state to access online programs offered by all UT campuses.

UT New College strives to emphasize a commitment to excellence, service to its students, an excitement for learning, and an entrepreneurial spirit that seeks new and more effective ways to engage students and faculty in the teaching-learning process.

In support of Tennessee’s Workforce Initiative, UT New College works with business and industry to develop degree and non-degree programs needed by their employees. UT New College also provides educational pathways for Tennesseans seeking career changes.

Fulfilling its commitment to all Tennesseans, UT New College also enables students in rural and underserved areas, as well as the homebound, to access the University’s programs online at convenient times and locations.

The following undergraduate majors are available through UT New College starting Fall 2001:

- Bachelor of Undergraduate studies with an area of interest in Business, and Human Resource Development.

For further information, contact:
UT New College
1534 White Avenue
Knoxville, Tennessee 37996-1525
Phone: (865) 974-6622 or (1-866) UT New 4 U
Website: www.NewCollege@utk.edu
E-mail: NewCollege@utk.edu

UNIVERSITY EVENING SCHOOL

Assistant Dean for Credit Programs:
M.K. Warden, Ed.D. Tennessee

Associate Director:
Dulcie Peccolo, Ph.D. Tennessee

Assistant Directors:
L.U. Jurand, M.S. Tennessee

The University Evening School administers on- and off-campus, undergraduate and graduate courses in a variety of nontraditional formats. All courses are approved and offered in conjunction with academic colleges and departments. Support services are provided to assist working adult students in their educational pursuits.
On-Campus Evening Program Classes are offered during the late afternoon and evening hours for those students who work or have other commitments during the day. The following undergraduate majors are available:
- College of Business Administration — Bachelor of Science in Business with majors in Accounting, General Business, Economics, Finance, Public Administration, Management or Marketing
- College of Arts and Sciences — Bachelor of Arts with majors in American Studies, Anthropology, Economics, English, History, Political Science, Psychology, Public Administration or Sociology
- College of Human Ecology — Bachelor of Science in Human Resource Development or Family Studies.

Some departments within the Colleges of Arts and Sciences, Business Administration, Communications, Education, Engineering and Human Ecology offer all courses required for an advanced degree during the evening.

Mini-Term The University Evening School offers a Mini-Term during May. Students may enroll in one concentrated credit course during the Mini-Term period. Courses and instructors listed for the Mini-Term are carefully selected to reflect a broad academic base of offerings suited to an intensive program of study.

Off-Campus Programs The Evening School conducts undergraduate and graduate courses in a number of locations away from the Knoxville campus. All course offerings and instructors are approved by the appropriate academic departments, and the credit awarded is resident credit. The Master of Science in Human Resource Development (College of Human Ecology) is available in Nashville. The Master of Science in Education is available in Anderson and Hamblen Counties. The Ed.D. in Education is available in Chattanooga. The Evening School administers off-campus courses in Oak Ridge leading to advanced degrees in Chemical, Environmental, Industrial, and Nuclear Engineering, as well as Safety Education.

Workshops Credit workshops are coordinated through various academic departments of the University and provide students the opportunity to participate in short periods of intensive study. Workshops offer flexibility of timing, location, and content. Summer workshops are particularly popular with teachers and school administrators. Although most workshops are held on the University’s Knoxville campus, geography is not a limiting factor.

Student Services A comprehensive program of services is provided by the University Evening School for both on- and off-campus students:
- Registration Priority registration by touchtone, regular phone, mail, web, or FAX is offered as a convenience to current Evening School students. Final registration at both on- and off-campus locations is available by phone, web, or in person.
- Fee Payment The Evening School functions as a Bursar’s office. Fees may be paid in person, by mail or by phone (with a credit card).
- Advising Advising is available for the benefit of all Evening School students who need assistance with academic or related matters. The program can accommodate students during regular daytime hours and in the evenings by appointment, as well as at several centralized off-campus locations. The Colleges of Arts and Sciences, Business Administration, Commnitions, Education and Engineering cooperate with the Evening School to provide advising appointments after work hours.

Financial Aid Evening School undergraduate students may be eligible for assistance through the need-based Evening School Scholarship Program. Interested students may also obtain applications for the Pell Grant in the Evening School office.

Fee Waiver Program for Senior and/or Disabled Citizens The Evening School administers this state-legislated program for UT. Senior or totally disabled Tennessee citizens who wish to take UT credit courses may audit these free of charge or, upon admission, may pay a reduced rate to receive regular credit. Specific information about the program may be obtained in the Evening School office.

Additional information may be obtained from:
- University Evening School
  451 Communications Building
  Knoxville, TN 37996-0341
  Phone: (865) 974-5361 or 1-800-676-8657
  FAX: (865) 974-2027
  E-mail: eveningschool@utk.edu
  Website: www.outreach.utk.edu/evening

SUMMER SCHOOL AND SPECIAL PROGRAMS

Assistant Dean for Credit Programs: M.K. Warden, Ed.D. Tennessee

SUMMER SCHOOL The Summer School offers a wide range of educational opportunities to regular students of The University of Tennessee and to visiting students from a variety of backgrounds. More than 1,000 different summer courses are offered by the departments in the School of Information Sciences, and the Colleges of Agricultural Sciences and Natural Resources, Architecture and Design, Arts and Sciences, Business Administration, Communications, Education, Engineering, Human Ecology, Law, Nursing, and Social Work.

One full term of ten weeks and two five-week sessions are offered during the summer. The principle mission of the Summer School is to enrich the educational opportunities for undergraduate and graduate students, attract students from other colleges to the Knoxville campus, and utilize the cultural and natural attractions of the area to further enrich students' summer experience.

The summer faculty is composed largely of regular University faculty. In addition, some visiting faculty members may be invited to teach each session. The rank and experience of the summer session faculty is representative of the University faculty.

Southern Appalachian Science and Engineering Fair The Fair brings between 300 and 400 students from East Tennessee middle and high schools where projects have been chosen to compete at the regional level. The event lasts 3-4 days with judging occupying one afternoon and evening. Projects are displayed for public viewing after the competition until the awards convocation. Senior grand prize winners advance to international competition.

FOR MORE INFORMATION To obtain more information about UT Summer School, please contact us.
- UT Evening School
  451 Communications Building
  Knoxville, TN 37996-0349
  Phone: (865) 974-5361 or 1-800-676-8657
  FAX: (865) 974-2027
  Website: www.outreach.utk.edu/evening

SPECIAL PROGRAMS

The University of Tennessee offers a number of special programs on its Knoxville campus. Many of the Special Programs may be of interest to K-12 and college teachers and students.

Tennessee Governor’s School for the Sciences The annual Governor’s School brings between 130 and 150 high school students from Tennessee to the campus for a four-week residential program which emphasizes skill development in writing, computer use and analytical thinking skills. The school also provides the opportunity for students to spend half of their time in a choice of seven programs with focused topics in contemporary science, engineering and mathematics.

East Tennessee Academic Decathlon This event brings high school teams of nine students and their coach(es) to campus for a day of competitive test taking. Approximately 150 teams register and pay an annual entry fee for the privilege of competing for medals and trophies.

Tennessee Science Olympiad Having won regional competitions, approximately 270 middle and high school students and their coaches from around the state participate in this event. The daylong competition involves approximately 25 events in each of the two school levels. Some events require intellectual performance in timed competitions, while other events require that a contrivance, prepared in advance or during the competition, be made to perform to standards which are not announced until competition time.

The Academy for Teachers of Science and Mathematics This annual event brings teachers and school administrators to the Knoxville campus. Teachers participate in a 4-week residential program and administrators attend a 3-day workshop. Emphasis is placed on the exploration of the experiential nature of ideas in science and mathematics and the profound interdependence of these two fields of human endeavor. The goal is to teach new, exciting ways of presenting math and science. In addition, the alumni are networked through the Internet and via annual meetings. Operating since 1991, the Academy presently has approximately 750 alumni located in 19 states and eastern Canada.

Directory of Special Programs Each year, the Special Programs office compiles a directory containing as many programs as can be identified on the University’s Knoxville campus that may be of interest to K-12 and college teachers and students. If you are interested in receiving a directory or additional information on Special Programs contact:
- Special Programs
  210 Hoskins Library
  Knoxville, TN 37996-4012
  Phone: (865) 974-3594
  Website: www.acad.utk.edu/specprog
Courses of Instruction

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

ACCOUNTING (009)

201 Principles of Financial Accounting (3) Introduction to financial accounting theory and practice with emphasis on the role of financial information in business decisions. Prerequisite to all other courses in Accounting. E

202 Principles of Managerial Accounting (3) Introduction to managerial and cost accounting concepts with emphasis on uses of accounting data by managers in planning operations, controlling activities, and decision making. Prerequisite: 201. E

311 Accounting for Primary Business Activities (3) Study of financial accounting for the primary activities of a business corporation: primary financial statements; revenue-accounts receivable-cash cycle; cost of goods sold; debt and equity financing. Prerequisite: 202. Prerequisite or Corequisite: Finance 301 and Management 203.

321 Cost and Managerial Accounting (3) Analysis of costing for products, projects, and management control. Topics include cost behavior, cost prediction, budgeting, and responsibility accounting. Prerequisite: 202. Prerequisite or Corequisite: Management 203. E

341 Accounting Information Systems (3) Development and use of accounting information systems for collection, organization, and distribution of economic information about organizations for internal and external decision making. Prerequisite: 202, Management 203, junior standing. Major exam may be given during the last class meetings. F, Sp

411 Financial, Compliance, and Operational Auditing (3) Role of auditing in society from an internal and external perspective, the IIA Code of Ethics, the IIA Standards for the Professional Practice of Internal Auditing, auditing methodology, role of internal control and statistical sampling in auditing, fraud auditing, operational auditing, compliance auditing, and applications of auditing procedures to specific transaction cycles. Prerequisite: 202.

414 Non Business Entities: Acquisitions; Mergers; and Foreign Operations (3) Investments; revenue recognition; accounting changes; error correction; statement of cash flows; introduction to leases, pensions, and deferred taxes; mergers; acquisitions; consolidated financial statements; foreign exchange and translation. Prerequisite: 311 with a C or better.

415 Governmental and Nonprofit Accounting (3) Advanced study of governmental and nonprofit entities. Governmental accounting principles, revenues and expenditures, budgeting, and financial reporting. Accounting principles and reporting models of nonprofit organizations. Integration of economic and social issues with reporting. Prerequisite: 311 or permission of the instructor.

431 Federal Income Taxation (3) Fundamentals of gross income, deductions, credits, and tax determination. Introduction to taxation of corporations and partnerships. Prerequisite: 311 with a C or better, or consent of instructor. F, Sp

451 Operational Auditing and Consulting (3) Approaches auditors might use to evaluate an entity’s efficiency and effectiveness in a variety of settings and techniques auditors might use in consulting to provide the entity a competitive advantage.

ADVERTISING (012)

250 Advertising Principles (3) Survey of the role of advertising in American business and society. Relationship between advertising and marketing; functional components of the advertising process: research, media, creative, and management.

340 Advertising Research Methods (3) Secondary data and primary research techniques for advertising decisions. Prerequisite: 250 and Statistics 201.

350 Advertising Creative Strategy (3) Basic concepts of creative strategy with intensive practice in developing creative platforms, writing and designing advertisements, and judging creative work. Prerequisite: 250, Communications 100 or Speech Communication 100.

360 Advertising Media Strategy (3) Assessment of markets, vehicle audiences and mathematical techniques for advertising planning. Instruction in media planning, buying, and evaluation. Prerequisite: 340.

380 Advertising Professional Seminar (1) Exploration of career choices in mass communications. Resume and letter writing, interviewing, and portfolio preparation. Prerequisite: Progression as a major in the Department of Advertising.

450 Advertising Management (3) Case study approach to advertising decisions. Data analysis and interpretation, generating alternative strategies, oral and written presentation of recommendations. Prerequisite: 350 and 360.

470 Advertising Campaigns (3) Group-based development of an advertising campaign for a regional or national client. Prerequisite: 450.

480 Advertising Issues (3) Examination of the role of advertising in society and controversies surrounding economic, social, cultural and ethical aspects of advertising. Emphasis on written and oral exposition of different viewpoints. Prerequisite: 340.

490 Special Topics (3) Detailed study of a specialized area of advertising. Topics vary by semester and include advanced media strategy, advanced creative strategy, direct marketing, and multicultural advertising.

492 Advertising Practicum (1) Experience in a functional area of advertising. Ten hours laboratory each week. May be repeated once. Prerequisite: Progression as a major in the Department of Advertising. Satisfactory/No Credit grading only.

493 Independent Study (1-3) Individual study in a specialized area under the supervision of a faculty member. Prerequisite: Consent of instructor.

AFRICAN AND AFRICAN-AMERICAN STUDIES (022)

201 Introduction to African-American Studies (3) Multidisciplinary approach to the African-American experience through the Civil War period which examines such issues as traditional African societies, the institution of slavery, the development of African-American culture, the beginnings of African-American protest tradition, and the Civil War and Reconstruction.

202 Introduction to African-American Studies (3) Multidisciplinary approach to the African-American experience from the Civil War through the Civil Rights era which focuses on such topics as African-American rural and urban societies, the African-American church and education and African-American intellectual and protest movements.

233 Major Black Writers (3) (Same as English 233.)

235 Introduction to African Studies (3) Multidisciplinary approach to the study of African traditions, cultures, religions, political economies, colonial and postcolonial dependencies, and states form the first through the sixteenth century.

236 Introduction to African Studies (3) The Multidisciplinary study of Africa and its incorporation into the world economy between the sixteenth and the twentieth centuries. Includes the rise of nationalism, post-colonial dependencies, contemporary problems, and current liberation struggles in various areas of the continent.

310 Introduction to African-American Music (3) (Same as Music History 310.)

315 The African Diaspora (3) (Same as Anthropology 315.)

319 Caribbean Cultures and Societies (3) (Same as Anthropology 319 and Latin American Studies 319.)
482 African-American Women in American Society (3) Focuses on historical and contemporary social, economic and political factors in American society as they relate to the Black woman. (Same as Women’s Studies 483.) Writing-emphasis course.

491 Foreign Study (1-15) Prereq: 201-202 and consent of instructor.

492 Off-Campus Study (1-15) Prereq: 201-202 and consent of instructor.

493 Independent Study (1-15) Prereq: 201-202 and consent of instructor.

496 Biology of Human Variability (3) (Same as Anthropology 496.)

AGRICULTURAL AND EXTENSION EDUCATION (042)

201 Field Experience in Agricultural and Extension Education (1) Field observation/experience in potential agricultural and extension education career fields. Grade requirements: daily journal, formal written report, complete required hours, seminar. Prereq: Consent of instructors (may include off-campus experience). May be repeated if changing concentrations. E

211 Foundations of Agricultural and Extension Education (3) History and philosophy of agricultural education and extension education. Major areas of emphasis include the historical development of agricultural education in the public schools and the federal extension education system. Formal and non-formal methods of education used, audiences served, organizational structure, and programming emphases will be studied by students. Foundation course for departmental majors and service course for those interested in related careers. F

301 Non-Formal Youth Development Programs (1-2) Structured experience in administering, organizing, conducting, and evaluating youth education programs in agricultural and extension education. Prereq: Consent of instructor. F, Sp

345 Agricultural Education and Program Planning (3) Overview of the historical and philosophical aspects of agriculture education, the role of teacher and learner, emphasis on SAE, FFA, community service, and summer programs. Prereq: 201, 211 or consent of instructor. Sp

346 Instructional Strategies for Teaching Agricultural Education (3) Methods and techniques for teaching agriculture, preparing lesson plans and units of instruction, development of agriculture curricula, and utilization of resources, multimedia, and computer technology into instruction. Prereq: 201, 211, 345 or consent of instructor. Sp

420 Methods of Teaching Agricultural Mechanics (2) Methods for teaching high school agricultural education students. Special competencies for planning, conducting and evaluating an agricultural mechanics program. Prereq: Biosystems Engineering Technology 202 or consent of instructor. F, Sp


492 Internship In Agricultural and Extension Education (1-6) Pre-approved off-campus supervised experience in county Extension offices, agricultural businesses, or agricultural related agencies. (Requires living off-campus for a specified time.). May be repeated up to a maximum of 6 hours. Prereq: 211, or Consent of Instructor. E

493 Independent Study (1-3) Individualized study of a special project or problem in Agricultural and Extension Education. Must be selected in consultation with the instructor. Consent of instructor. May be repeated for credit. Maximum 6 hours. E

Agricultural Economics (047)

110 Opportunities in Agricultural Economics and Business (1) Overview of current issues and career opportunities. For majors and non-majors.

210 Introduction to Agricultural Economics (3) Application of economic principles of demand, supply, price determination, and market structure to agriculture, natural resources, rural communities, development, and international trade and development. Economic aspects of current issues and problems associated with production, marketing, consumption, resource use, and government intervention in the agricultural, rural, and international sectors. Prereq: Economics 201. F, Sp

212 The Agribusiness Firm (3) Introduction to agribusiness firm characteristics and decision making. Overview of economic principles and the basic functions of management: planning, organizing, controlling, and directing. Specific topics include firm structure, forecasting, marketing and selling, budgeting, break-even analysis, use of financial statements, capital investment, supervision, staffing, and evaluation. F, Sp

320 Agricultural Microeconomics (3) Application of economic theory to agricultural markets in the year of study. Analysis of price formation, demand, supply, income, and factor prices. Prereq: Economics 201. F

342 Farm Business Management I (3) Principles and procedures for determining most profitable business organizations and systems for agricultural enterprises and enterprises; nature of managerial processes; business records and their use; personnel and management of capital, land, labor and machinery; farm business planning. Prereq: Economics 201 and Junior standing.

350 The Agricultural Marketing System (3) Survey of U.S. food and fiber marketing system; marketing functions; industry structure; market channels; marketing options of farmers; basic analysis of marketing problems. Prereq: Economics 201. F

355 Agribusiness Marketing and Professional Selling (3) Role of marketing in the agribusiness organization, planning marketing efforts, and the strategic selling process. Topics include identification of market opportunities, targeting, marketing mix, and personal selling in agribusiness. Prereq: Economics 201. F

410 Seminar in Agricultural Economics and Business (1) Primarily for Agricultural Economics and Agricultural Business students. Special emphasis on contemporary problems in the field. Discussion of career objectives, opportunities, and placement process. Assignments for written and oral presentation. F

412 Agricultural Finance (3) Macro-finance, financial objectives, acquisition of debt and equity funds, capital investments, capital allocation, debt repayment, credit analysis, borrower and lender loan application analysis, financial strategies, competitive applications, kinds and sources of agricultural credit, and financial intermediation. Prereq: Economics 201. F

420 International Agricultural Trade and Marketing (3) Introduction to real and monetary aspects of international trade effect on agricultural commodity flows; partial equilibrium analysis of international trade in agricultural products; institutional aspects of international marketing of agricultural products. Prereq: 320 or consent of instructor. Sp

430 Agricultural Policy (3) Values, goals and policy process. Economic rationale and effects of policy. Historical development and conceptual framework. Commodity, credit, food, and trade policy. Prereq: 320 or consent of instructor. Sp

442 Agribusiness Management (3) Applications of advanced decision analysis concepts and tools to analyze management decision making in both on-farm and non-farm agribusiness settings. Case study work on strategic planning; assessing cost structure using budgeting and break-even analysis; evaluating profitability, liquidity, and solvency using financial statements; analyzing investments using capital budgeting, etc. Prereq: 342 or consent of instructor. F

450 Agricultural Price Analysis (3) Analytical tools for decision making in the agricultural sector; analysis of commodity supply and demand conditions; economic modeling; market forecasting; analysis of temporal and spatial patterns. Prereq: 320 and Statistics 201 or consent of instructor. F
AGRICULTURE AND NATURAL RESOURCES (088)

101 Perspectives in Agriculture and Associated Natural Resources (3) Historical development, current national and international issues, and trends for the future. 3 hours.

290 Computer Applications to Problem Solving (3) Use of computers to analyze and solve problems related to agricultural sciences and natural resources. The use and integration of computer applications such as spreadsheets, databases, presentation graphics, word processing, and other applicable software as needed for problem analysis and reporting. Prereq: Satisfactory performance on a skills/placement test. For details, see advisor. 2 hours and 1 lab. F,Sp.

317 Agriculture and Natural Resources Honors Seminar (1) Discussion of selected topics, issues and problems influencing national and international food, agriculture and natural resources systems. Primarily for College of Agriculture and Natural Resources students to satisfy directed study requirements. May be repeated. Maximum of 4 credits. Satisfactory/No Credit. F.

333 Food, Forests and the Environment (3) Overview of the environmental tradeoffs that have been, are, and will be required to produce the food, fiber and other products needed to feed, cloth and house a growing world population. Topics to include basic natural resources, current practices in agriculture, forestry, and food handling, and practices related to quality of life issues, such as wildlife and landscape design. This course may not be used by College of Agricultural Sciences and Natural Resources students to satisfy directed study requirements.

491 International Experience in Agriculture and Natural Resources (1-15) Credit for formalized international experiences related to agricultural sciences and natural resources. Prerequisites: credit for the CASCNR Honors program, a 3.0 grade point average, consent of a faculty advisor. Prereq: Participation in the CASCNR Honors program.

493 Honors Independent Project (1-6) For students participating in the CASNR Honors Research and Creative Achievements Program. Consists of independent work with a faculty member. Prereq: Participation in the CASCNR Honors program.

498 Honors Presentation (1) For students participating in the CASNR Honors program. Final written report and oral presentation of the honors project. Prereq: Participation in the CASNR Honors Program.

AIR FORCE AEROSPACE STUDIES (094)

101-102 The Air Force Today (1,1) AS100 is a survey course that focuses on the organizational structure and mission of the Air Force; officering and professionalism; and includes an introduction to communicative skills. A weekly Leadership Laboratory (LLAB) consisting of Air Force customs and courtesies, and military drill and ceremonies is mandatory. Prereq: Economics 201, Sp.

201-202 The Development of Air Power (1,1) AS200 focuses on factors contributing to the development of air power from its earliest beginnings through two world wars; the evolution of air power concepts and doctrine; and the assessment of communicative skills. A weekly Leadership Laboratory (LLAB) consisting of Air Force customs and courtesies, Air Force environment, drill and ceremonies, and field training orientation is mandatory.

203-204 Leadership Laboratory (1,1) Leadership Laboratory includes a study of Air Force customs and courtesies, drill and ceremonies, and giving military commands; instructing, correcting, and evaluating the preceding skills; studying the environment of an Air Force officer; and learning about opportunities available to commissioned officers.

301-302 Air Force Leadership and Management (3,3) AS300 is a study of leadership and quality management fundamentals, professional knowledge, leadership ethics, and communicative skills required of an Air Force officer. Course also examines Air Force leadership and management situations as a means of demonstrating and exercising practical application of the concepts being studied. A mandatory weekly Leadership Laboratory (LLAB) provides advanced leadership experiences in office-type activities and gives students the opportunity to apply leadership and management principles to their course.

303-304 Leadership Laboratory (0,0) Leadership Laboratory consists of activities classified as advanced leadership experiences. They involve planning, organizing, staffing, coordinating, directing, and controlling the military activities of the cadet corps; preparation and presentation of briefings and other oral and written communications; and providing interviews, guidance, and information which will increase the understanding, motivation, and performance of other cadets.

401-402 National Security Forces in Contemporary American Society (3,3) AS400 examines the need for national security, analyzes the evolution and formulation of America's national security strategy of joint doctrine; investigates the methods for managing conflict; and overviews regional security, arms control, and terrorism. Special emphasis of interest focus on the military as a profession, officering, the military justice system, and current issues affecting military professionalism. Within this structure, continued emphasis is given to the refinement of communicative skills. A weekly Leadership Laboratory (LLAB) consisting primarily of advanced leadership experiences in office-type activities is mandatory.

403-404 Leadership Laboratory (0,0) Leadership Laboratory consists of activities classified as advanced leadership experiences. They involve planning, organizing, staffing, coordinating, directing, and controlling the military activities of the cadet corps; preparation and presentation of briefings and oral and written communications; and providing interviews, guidance, and information which will increase the understanding, motivation, and performance of other cadets.

AMERICAN STUDIES (099)

310 Introduction to American Studies (3) Explores dynamics and nature of the culture(s) of the United States through interdisciplinary study and interpretation. Covers "mainstream" and "minority" cultures. Writing-emphasis course.

312 Popular Culture and American Politics (3) (Same as Political Science 312.)

320 American Cultures (3) (Same as Anthropology 320.)

334 Film and American Culture (3) (Same as Cinema Studies 334 and English 334.)

343 Race and Ethnicity (3) (Same as Sociology 343.)

345 Collective Behavior and Social Movements (3) (Same as Sociology 345.)

355 Religion and Culture in the United States (3) (Same as Religious Studies 355.)

381 Introduction to Folklore (3) (Same as English 381.)

410 Topics in American Culture (3) Content varies. May be repeated once.

420 Political Attitudes and Behavior (3) (Same as Political Science 420.)

423 Geography of American Popular Culture (3) (Same as Geography 423.)

442 American Humor (3) (Same as English 442.)

450 Seminar in American Studies (3) Intensive study of a major issue in American Studies scholarship.

456 History of Sports in the United States (3) (Same as History 456.)

469 Freedom of Speech (3) (Same as Speech Communication 469.)

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

ANIMAL SCIENCE (113)

101 Orientation to Animal Science (1) For Animal Science majors and Animal Science Prevet students in their first year. Discussion of student services, activities, and careers; student participation in planning the college experience. Satisfactory/No Credit. F, Sp.

220 Anatomy and Physiology of Farm Animals (3) Skeletal and joints; muscles; blood and microcirculation; nervous, endocrine, cardiovascular, respiratory, and digestive systems; demonstrations of physicochemical phenomena. Prereq: Biology 120 or 130. 2 hours and 1 lab. F


500 Horse Management and Care (3) Proper procedures for horse-human interaction and the recommended management procedures for horse care. The basic behavioral characteristics of the horse, an understanding of his physical and mental parameters and their use in horse-human communication. Interactions include imprinting, haltering, halter training, loping, long-line driving, bridling, bitting, round pen training, saddling and leading. Foot care includes feed selection and management, post-natal care, restraint, foot care, dental care, grooming, loading and trailerling, stall maintenance, internal and external parasite control, exercises, identification techniques, routine vaccinations and first aid. Safety for both horse and handler will be emphasized. 3-2.5/hrs. labs. F, Sp.

320 The Physiology of Reproduction and Lactation (3) Biology of sex and sexual differentiation, functional anatomy of male and female, reproduction and lactation, gametogenesis, neuroendocrinology and endocrinology of reproduction and lactation, sex cycles, fertility, contraception, folliculogenesis, ovulation, spermatogenesis, fertilization, embryonic development, implantation, pregnancy, parturition, nutrition of the dam and milk production of the dry period, artificial control of reproduction and lactation. Prereq: Biology 120 or 130. 2 hours and 1 lab. Sp. (Same as BCM 322.)

Courses of Instruction 147
330 Animal Nutrition, Feeds, and Ration Formulation (4) Properties, functions, utilization, and deficiency symptoms of essential nutrients; properties and functions of feedstuffs and principles of ration formulation. Prereq: Chemistry 110 or Chemistry 130 and Math 121. 2 hours and 2 labs. F

340 Principles of Animal Breeding (3) Genetic and environmental bases of animal variation. Selection and management systems as mechanisms of genetic change. Planning breeding programs for economically important domestic species. 2 hours and 1 lab. F

361 Meat Animal Evaluation (2) Visual and objective appraisal and evaluation of beef cattle, swine and sheep for functional and economic traits. Prereq: 260. 2 labs. F

362 Dairy Cattle Evaluation (2) Comparative judging, oral reasons, breed classification programs, economic value of conformation traits. Prereq: 260. 2 labs. F

364 Horse Evaluation (2) Evaluation of horses for soundness and functional efficiency and the relationship of form to function in various breeds of horses. 2 labs. Sp

380 Animal Health Management (3) Characteristics, symptoms, prevention, and treatment of major diseases and parasites. Immunization, health regulations and herd health programs for all farm livestock species and poultry. Prereq: AS220. 2 hours and 1 lab. Sp

381 Animal Production Systems (3) Fundamentals of production and management systems in beef, dairy, pork, and poultry programs. Application of principles of nutrition, breeding and management into complete production systems. Decision making management practices and information resources, enterprise evaluation, and comparison of different production systems. 2 hours and 1 lab. No credit for majors. F

420 Advanced Reproduction (3) Collection, evaluation, and preservation of ova, spermatozoa and embryos; application of methods of natural breeding and techniques of artificial insemination and embryo transfer; herd sire and dam evaluation; pregnancy determination; gestation and parturition; infertility; recent advances in theriogenology. Prereq: 320. 1 hour and 2 labs. F

430 Advanced Ration Formulation (2) Advanced ration formulation for beef and dairy cattle, sheep, horses, swine, poultry, laboratory, zoo, and companion animals. Mathematical and computer solutions and applications to formulating complex rations with constraints. Prereq: 330 and introductory computer science course. 2 labs. Sp

461 Advanced Beef Cattle, Dairy Cattle, Horse, Poultry, and Sheep Production (3) Production ration formulation in judging; evaluation, selection and presentation of oral reasons for classes of beef cattle, dairy cattle horses, swine, poultry, sheep, and swine. Prereq: Consent of instructor. 2 labs. F

481 Beef Cattle Production and Management (3) Integration of principles of nutrition, breeding, physiology, and marketing into complete production and management programs. Structure of industry, enterprise establishment, systems of production, production practices, and improvement programs. Management evaluated in terms of production response and economic returns. Comparisons made to small ruminant, forage-based production systems. Prereq: Completion of Animal Science sophomore and junior core courses or consent of instructor. 2 hours and 1 lab. Sp

484 Poultry Production and Management (3) Integration of principles of nutrition, breeding, physiology, and marketing into complete production and management programs. Structure of industry, enterprise establishment, systems of production, production practices, and improvement programs. Management evaluated in terms of production response and economic returns. Prereq: Completion of Animal Science sophomore and junior core courses. 2 hours and 1 lab. Sp

486 Small Animal Practice (3) Integration of principles of nutrition, breeding, physiology, and marketing into complete production and management programs. Types of enterprises, management of feed and pasture resources, health maintenance and first aid, breeding and foaling, farm structures and equipment. Prereq: consent of instructor. 2 hours and 1 lab. F

489 Companion, Zoo and Lab Animal Management (3) Principles of nutrition, physiology, breeding, handling, and history of breeds of common household pets, zoo animals and animals used in scientific research. Specific species requirements and peculiarities. Laws and agencies governing use of laboratory animals. Laboratory analysis of blood metabolites commonly used to monitor health and nutritional status. Prereq: Consent of instructor. 2 lectures and 1 lab. Sp - AE

492 Animal Science Field Study (1-6) Off-campus work experience approved by the department. Objective: to provide students with the skills and knowledge to give the student an opportunity to gain experience in industry. Students must submit official approval form prior to registration. Students will be evaluated on their knowledge and skills and must submit a written summary of the program completion. E

493 Independent Study in Animal Science (1-3) Approved supervised study in areas not formally presented in a course offered in the department. Written proposal of study is approved by the Department of Animal Science Undergraduate Committee. After completion of study, a written report is required and this report is maintained on file in the reference room of the department. May be repeated for a maximum of 6 credits. Prereq: Senior standing and consent of instructor and department head. E

494 Animal Science Teaching Assistant (1) Assist the primary instructor in laboratory instruction and demonstrations. Prereq: Senior standing and consent of the instructor and Department Head. S/NC. E

495 Seminar (1) Review of literature and oral and written presentation on special topics and current research in Animal Science field. Prereq: Senior standing. One 2 hour lab. F, Sp

496 Veterinary Medical Technology (1) For Animal Science and/or Animal Science Pre-Veterinary Medicine majors only. Course is completion of at least 60 credit hours. Students will observe and assist clinicians in the College of Veterinary Medicine as they carry out day to day activities in the large and/or small animal clinics. One lab. Sp

ANTHROPOLOGY (122)

110 Human Origins (3) Survey of humanity’s back- ground, fossil primates, fossil human remains, and living races of humankind.

120 Prehistoric Archaeology (3) Introduction to methods and techniques used to identify and date archaeological cultures, research questions and descriptive cultural evolution. Overview of the prehistory of Africa, western Europe, southwest Asia, and the Americas from earliest dated human cultures to rise of complex civilizations.


302 Anthropology of Religion (3) (Same as Religious Studies 302.)

305 Evolution and Society (3) (Same as Ecology and Evolutionary Biology 305.)

306 Genetics and Society (3) (Same as Botany 306.)

310 North American Indians (3) Comparative over- view of Indian cultures of North America. Topical cover- age ranges from prehistory and aboriginal lifeways to problems resulting from contact and acculturation. Writing- emphasis course.

311 Southeastern Indians (3) Survey of Southeastern American Indian cultures at the time of European con- tact. Emphasis on Cherokee culture and on the social, economic, and religious organization of aboriginal groups. Prereq: 130 or consent of instructor.

312 Appalachian Culture (3) Traditional Southern Appalachian subsistence patterns and economy, social organization, beliefs and values, folklore and customs, socio-cultural impacts of industrialization and modern- ization. Prereq: 130 or consent of instructor. Writing- emphasis course.

313 Peoples and Cultures of Mesoamerica (3) Pre- Columbian and Hispanic cultures of Mexico, Guate- mala, and Spanish colonial societies. Analysis of cultural continuity and cultural change throughout Mesoamerica’s history. Prereq: 130 or consent of in- structor. (Same as Latin American Studies 313.) Writing- emphasis course.

315 The African Diaspora (3) An overview of anthropological perspectives on people of African descent and the impact of an African presence on societies in the Americas through the rise of African Americans and their counterparts elsewhere in the hemisphere are situated in the context of a broader diaspora. Prereq: 130 or consent of instructor. Writing emphasis course. (Same as African and African-American Studies 315.)

316 Peoples and Cultures of South America (3) An introduction to contemporary analysis and debate on South America that places the concept “culture” in historical perspective and discusses the anthropologi- cal notion of “people” within the complexity of indig- enous and black social formations. Writing emphasis course. (Same as Latin American Studies 314.)

319 Caribbean Cultures and Societies (2) Anthropo- logical approaches to key aspects of Caribbean history, sociocultural pluralism, racial and class stratification, patterns of economic development, and local and na- tional political processes. Prereq: 130 or consent of instructor. Writing emphasis course. (Same as African and African-American Studies 319 and Latin Ameri- can Studies 319.)

320 American Indians (3) Anthropological perspec- tives on cultural diversity in America, including the immigrant experience and expressions of ethnicity, inter- cultural relations, occupational and interest group subcultures. Writing emphasis course. (Same as Ameri- can Studies 320.)

321 Indians of Northwest North America (3) Survey of American Indian cultures found in the Northwest Coast, Columbia Plateau, and Northern Great Basin area cultures. Writing emphasis course.

357 Junior Honors in Anthropology (3) Analytical, integrative review of current directions of research and theory in Anthropology. Open to students with an overall GPA of 3.2 who have fulfilled progression requirements to declare a major in Anthropology.

360 North American Prehistory (3) Prehistoric cul- tures of North America from initial occupation of the continent to European contact. Writing emphasis course.

361 Historical Archaeology (3) Historical archaeology of Euro-American, African-American, and Asian Ameri- can cultures in the United States from 15th to 20th centuries.

362 Principles of Archaeology (3) Research strate- gies used in developing and theory, constructing cultural histories, identifying site function and settle- ments used in developing method and theory, construct- ing cultural histories, identifying site function and settle- ments. Prereq: Consent of instructor. Writing emphasis course.

363 Prehistory of Tennessee (3) Archaeological prin- ciples and theory illustrated in history of archaeological research in Tennessee and through survey of prehis- toric Indian cultures from initial occupation of the state to European contact. Recommended. 360. Writing em- phasis course.
464 Principles of Zoarchaeology (3) Basic osteological studies of major vertebrate groups, with emphasis on the aboriginal's use of animals in subsistence and culture. Identification and interpretation of archaeologically derived molluscan and vertebrate remains, with introduction to laboratory use of comparative collections. Prereq: 120 or consent of instructor.

465 Urban Archaeology (3) Field archaeology and interpretation of urban sites in the United States. Course content will include lectures and field and laboratory research on urban sites in Eastern Tennessee. Prereq: 361 recommended.

480 Human Osteology (4) Intensive examination of the human skeleton. Prereq: 110 or consent of instructor; 3 hours and 1 hour lab.

481 Museology I: Museums, Purpose and Function (3) (Same as Art 481.)

482 Museology II: Exhibition Planning and Installation (3) (Same as Art 482.)

484 Mesoamerican Sites (1-12) (Same as Art 484.)

485 Oral Biology (4) Intense examination of human dentition and oral skeletal structures including dento-facial embryology/growth, histology, gross tooth morphology and pathology. Prereq: Anthropology 480 or consent of instructor.

490 Primate Evolution (3) Living and fossil primate taxonomy, ecology, and comparative anatomy. Survey of primate fossil record on the evolutionary and major primate lineages. Prereq: 110 or consent of instructor.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

494 Primate Behavior (3) Social organization and behavior of selected primates including geographic composition, size, and structure; patterns of mating; other social interactions; communication; and cultural behavior. Application of primate studies to human ethology. Prereq: 110 or consent of instructor.

495 Human Paleontology (4) Intensive survey of the human fossil record from the earliest hominid remains to the earliest origins of modern human form. Prereq: 110 or consent of instructor.

496 Biology of Human Variability (3) Introduction to human populations; human adaptation, biological features of major human races, relationships of major groups to one another. Prereq: 110 or consent of instructor. (Same as African and African-American Studies 496.)

ARABIC (127)

121-122 Elementary Modern Arabic I, II (5,5) Same as Asian Studies 121-122.)

221-222 Intermediate Modern Arabic I, II (5,5) (Same as Asian Studies 221-222.)

ARCHITECTURE (133)

101 Introduction to the Built Environment (3) Scope and definition of the built environment in relation to contemporary society, building industry, and allied design professions. Coreq: Architectural Technology 132.

102 Visual Design Theory (2) Principles of visual design, addressed regionally and globally. Exploration of visual ideas through analysis. Introduction of terminology and vocabulary. Coreq: 172, F

111 Architecture and the Built Environment (3) An introduction to architecture and the built environment for nonarchitectural majors as a context for understanding the role of the city, the environment, and the landscape in architectural design. Methods of analyzing place and form in determining design strategies. Representational skills developed including drawing, modeling, and word processing. Coreq: 172, F

272 Architectural Design II (6) Studies in architectural design. The role of function, habitation, movement, structure, and scale as determinants of spatial form explored through a series of design projects ranging in scale from furniture to dwellings. Development of design processes, including analytical skills, diagramming, and determining design organizational strategies. Use of computer aided visualization techniques. Prereq: 271, Sp

271 Architectural Design I (6) Introduction to the conceptual determination of architectural design. Role of the city, the environment, and the landscape in architectural design. Methods of analyzing place and form in determining design strategies. Representational skills developed including drawing, modeling, and word processing. Coreq: 272, F

281 Principles of Architectural Form (6) Principles of architectural form emphasizing building configuration and design. Focus on the design of simple buildings which explore possibilities of site, form, shape, form and space, mass and form. (3 credit hour seminar and 3 credit hour studio). Prereq: 182 or equivalent.
282 Principles of Architectural Design (6) Principles of architectural design emphasizing site, function, circulation, structure, technology, context and expression of buildings. (1 hour seminar and 4 credit hours studio) Prereq: 281.

312 Materials and Methods of Construction (3) Properties of interior and exterior building materials and their relation to construction methods and detailing. Theory of material behavior, selection and role of the various materials and methods play in the design process. Prereq: 232. Sp


322 Architectural Structures II (4) Continuation of analysis and design of simple structures of steel, wood and concrete based upon specific loading requirements. Use of construction and building codes, handbooks and design tables - selection of structural members. Prereq: 331. Sp

334 Advanced Architectural Structures (3) Philosophy of structural design in relation to materials and form. Advanced mathematical and experimental analysis of structures, including use of computer programs. Prereq: 323 or equivalent.

335 Structures in Architecture I (3) Introduction to the structural properties of materials, foundations and simple statically determinate assemblies of buildings. Prereq: 180 and M. Arch Admission.

336 Structures in Architecture II (3) Continuation of analysis and design of simple structures in wood, steel and concrete. Introduction of building codes, loading tables and handbooks for selection of structural members. Prereq: 335 or special permission.

341 Environmental Control Systems I (4) Heating, ventilating, and air-conditioning systems, including passive and active solar energy systems. Plumbing and fire protection systems. Prereq: 231 and 232. F


345 Principles of Environmental Control I (3) Introduction to heating, ventilating, air-conditioning, solar energy, plumbing and fire-protection systems. Prereq: 180 and M. Arch Admission.

346 Principles of Environmental Control II (3) Introduction to electrical design and wiring, lighting and acoustics in buildings. Prereq: 345 and M. Arch Admission.


403 Introduction to Preservation (3) History, theory, and legal aspects of architectural preservation and restoration.

404 Preservation Technology (3) Techniques of preservation: methods of analysis, history of materials and technology used to predict deterioration. Prereq: 372. F

405 Descriptive Analysis of Historic Buildings (3) Identification and analysis of characteristic elements of buildings from various architectural periods, with emphasis on American architecture. Survey techniques.

406 Ideas in Architecture (3) Historical and critical review of the major ideas of architecture through the ages. Open to all students.

410 History and Theory of Urban Form (3) Patterns of community development. Selected historical and contemporary examples. Basic urban design issues and exemplary design approaches are examined through lectures, readings, essays, and sketch studies including historical change in urban form and design.

412 Non-Western and Indigenous Architecture (3) Building responsive to climate, material availability, and economic level, as designed by anonymous builders. Examples from a recent presentation include the fertile Crescent; the Indus Valley; Hindu, Buddhist, and Mughal architecture of India, China, and Japan.

413 Tennessee Architecture (3) History of settlement patterns and building in Tennessee. Selected examples examined through site visits, lectures, discussions and field trips. Historical research using primary material.

414 History of Architectural Technology (3) Building materials and construction techniques from antiquity to the present.

415 Medieval Architecture (3) History of architecture from the decline of Rome to the beginning of the Renaissance. (Same as Medieval Studies 415.)

417 The International Style (3) A survey of architecture of the early modern movement, primarily in Europe and America, covering the years 1900 to 1940.


420 American Architecture, 1840-1940 (3) Stylistic periods from the Gothic Revival through the Twentieth Century.

421 History of Landscape Architecture (3) Intercultural, historical and geographical influences which provide the theoretical basis for design throughout history. Selected examples of landscape architecture analyzed in terms of design.

422 Modern East European Architecture (3) Twentieth century architecture in Russia, Czechoslovakia, Poland, Hungary, East Germany, Rumania, Bulgaria, Yugoslavia.

425 Special Topics in Architecture (1-6) Faculty-initiated courses. Topics vary. May be repeated. Maximum course credit 12 hours. Prereq: consent of instructor.

431 Structural and Mechanical Applications (3) Case study analysis and selection of structural and mechanical systems, investigating the conceptual integration of technical information into a unified design solution. Prereq: 332, 342, Coreq: 272. F

432 Computer Applications in Design III (3) Advanced computer aided design using three-dimensional modeling software. Design analysis using computer animation, rendering techniques, visualization, and video. Prereq: 231. Sp

433 Computer Applications in Design IV (3) Advanced course that integrates three-dimensional modeling and technical analysis using computers to analyze structural, material, and mechanical influences, under faculty direction. Prereq: Consent of instructor.

443 Building Energy Analysis (3) Balancing heat flow through external skin of residential and small and large commercial buildings; local climate evaluation; site planning, building size and orientation, window area, wall treatment, infiltration control. Energy use quantification methods and economic analysis of energy efficient design features. Architectural program analysis of external and internal load dominated buildings. Prereq: 341.

444 Advanced Environmental Control Systems (3) In-depth analysis and innovative concepts in design of heating, ventilating, and air conditioning. Prereq: 341.

445 Advanced Lighting (3) In-depth analysis and innovative concepts in design of lighting. Prereq: 345.

462 Professional Practice (4) Management and organizational theories and practices for delivering professional design services. Included are assessment of the building industry and its influence on practice; analysis of the basic management functions within professional firms; and legal and ethical concerns facing practitioners today. Special obligations and privileges of the design professions.

463 Architectural Development (3) Principles and practice of the architect as a developer. Impact of economics, finance and urban policy on the design and development of real estate. Open to all students.


472 Architectural Design VI (6) Order and form in complex buildings developed to address programmatic, structural, energy and environmental issues. Prereq: 471.

473 Architectural Photography (3) Photography as a design, research, and presentation medium. Application of photographic techniques, printing and processing. Color, black and white.

480 Comprehensive Design Project I (3) Project selected in cooperation with Architecture 444. Formulation and documentation of hypotheses. Preparation of background and program information. Goals and concepts set forth. To be taken semester immediately following. F

481 Advanced Architectural Design Topics (6) Faculty initiated design projects. Advanced architectural topics not covered under 483, 484, 485, 486, or 489. Prereq: 471. F

482 Comprehensive Design Project II (6) Student selected project under faculty direction. Exploration of design hypothesis which informs the character of a substantial building design. (See Architecture 480.) Completed project will address all issues of environment, structure, enclosure, use, and ethical consideration of design appropriateness. Design is expected to stand up to rigorous scrutiny regarding strength of idea, economic means, durability for stipulated use, quality of cultural expression, and character of setting. Prereq: 480 and satisfactory completion of all design courses. Sp

483 Urban Design (6) Urban design projects responding to specific community condition. Exploration of urban issues in making and understanding the architecture of the city. Prereq: 471. F


485 Development and Design (6) Exploration of image making, consumerism and the allocation of scarce resources. Issues of finance, economics, urban economics, and marketing are analyzed in relation to urban and architectural design. Application of financial feasibility models. Prereq: 471 and 463 or consent of instructor. F

486 Design of Sustainable Architecture (6) Architectural design studio emphasizing concern for the environment, consideration of energy conservation techniques, and use of renewable resources. Prereq: 471. F

489 Structural Innovations (6) Building design with innovative structural configuration and technology. Exploration of new materials, detailing, and methods in building construction. Prereq: 471. F

491 Foreign Study (1-15) Research and design projects conducted in various locations abroad. F, Su

492 Off-Campus Study (1-15) Studies conducted under direction of architect or expert in an allied profession, in service to public service organizations or agencies of government, and public groups. Not a Design Course elective.

493 Independent Study in Architecture (1-6) Individual studies and projects under faculty direction. Credit adjusted to complexity and level of effort required. May be repeated once. Prereq: consent of dean.

494 Foreign Studies Sketchbook (1-3) Investigations of historic urban fabric and architecture in various locations abroad. Analysis and sketch records in sketchbook format required.

496 Design Studies in Krakow (3) Studio meets in Krakow, Poland. Design studio for students who wish to work in Krakow, Poland, and its environment. F

497 Sketchbook Study of Architecture in Central Europe (6) Sketchbooks completed in various locations abroad. F

498 Fine Art Studies in Krakow (3) Studio meets in Krakow, Poland. Fine arts investigations related to architectural design.