Fourth Year
Agricultural Economics 410, 442 ............................................. 4
2Agricultural Economics or Rural Sociology Electives ............... 9
Biosystems Engineering Technology 432, 442, 452, 462 ............. 12
Economics 313 ..................................................................... 3
Statistics 320 or 365 ............................................................. 3

Total 122

* Meets University General Education Requirement.
1 Choose any course from University General Education list.
2 A minimum of 6 credit hours must be taken from the following list of courses: Agricultural Economics 315, 330, 337, 355, 360, 420, 430, 444, 450, 470. A maximum of 3 credit hours can be used from each of the following courses: Agricultural Economics 356, 492, and 493.

Minor in Agricultural Economics and Business
Required Courses Hours Credit
Economics 201 ...................................................................... 4
Accounting 200 ................................................................. 3
Agricultural Economics 212, 342, 350, 412 .......................... 12
Agricultural Economics Elective ........................................... 3

Total 22

AGRICULTURE AND NATURAL RESOURCES
(Interdepartmental Unit)
Agriculture and Natural Resources is an interdepartmental unit that offers a general agricultural science major with concentrations in agricultural education and agricultural extension education. The major is designed for students who want a broad, general background in agriculture and natural resources and wish to pursue careers in non-formal agricultural education, agricultural communications or agriculture public relations. The agricultural education concentration leads to teacher licensure in agricultural sciences in the State of Tennessee. The agricultural extension concentration is designed for those interested in agricultural extension careers. This major is also designed for students who want an individualized plan of study. Plans need to be submitted before the junior year and approved by the advisor, department head, and the dean's office.

Students who are undecided as to their studies in agriculture and natural resources are advised to follow the agricultural science program and explore the different majors available in the college. They should work with their assigned advisor to eventually choose one of the agricultural sciences minors. Students in the agricultural education and agricultural extension education concentrations or one of the minors offered by the College of Communication and Information should follow the appropriate concentration and work with faculty in agricultural and extension education housed in Morgan Hall.

AGRICULTURAL SCIENCE MAJOR
Requirements for the Bachelor of Science in Agriculture
• Agricultural Science Major
First Year Hours Credit
Agriculture and Natural Resources 100 ...................................... 1
Agriculture and Natural Resources 290 .................................... 3
Animal Science 160 ............................................................. 3
Biological Science and Technology 101 ................................. 3
English 101*, 102* ............................................................. 3
Mathematics 113* and Quantitative Reasoning course* .......... 6
Plant Sciences 120 ............................................................. 2

Second Year
Agricultural and Extension Education 211 ............................. 3
Agricultural Economics 212 ................................................ 3
Food Science and Technology 101 ....................................... 3
Chemistry 100*-110* or 120*-130* ..................................... 8
Environmental and Soil Sciences 210 ................................ 4

Third Year
Agricultural Economics 342 ................................................. 3
Entomology and Plant Pathology 313 or 321 ......................... 3
2Agricultural Sciences and Natural Resources Electives .......... 9
2Arts and Humanities Elective ............................................ 3
2Plant Sciences 330 or 430 ................................................ 2-3
3Minor ............................................................................. 15

Fourth Year
3Minor ............................................................................. 9
2Agricultural Sciences and Natural Resources Electives .......... 9
2Arts and Humanities Elective ............................................ 3
2Cultures and Civilizations Elective* .................................. 3
2Social Sciences Elective* ................................................ 3
2Free Electives ................................................................. 7-8

Total 124

* Meets University General Education Requirement.
1 Choose from the University General Education lists.
2 One of the University General Education Electives, Agricultural Sciences and Natural Resources Electives, or Free Electives must be a writing-intensive (WC) course.
3 Students should select one of the minors offered by the College of Agricultural Sciences and Natural Resources (agricultural economics, animal science, biosystems engineering technology, entomology and plant pathology, environmental and soil sciences, food science and technology, forestry, plant sciences, wildlife and fisheries science) or one of the minors in the College of Communication and Information (see listing in this catalog) or submit an individualized plan of study before the third year for approval by the advisor, department head, and the Dean’s Office. If the minor is less than 21 hours, the excess hours will become free electives.

AGRICULTURAL EDUCATION CONCENTRATION
http://aee.tennessee.edu/
Professor
Waters, R.G., PhD ............................................................... Penn State
Assistant Professor
Fritz, C.A., PhD ................................................................. Iowa State
Emeriti Faculty
Lessley, R.R., EdD .............................................................. Oklahoma State
Todd, J.D., EdD ................................................................. Illinios

The agricultural education concentration is designed to prepare students to meet teacher certification requirements for agricultural education in the public schools. Teacher certification is given in collaboration with the College of Education, Health, and Human Sciences. Progression toward completion of a degree and licensure in agricultural education requires acceptance to the teacher education program by a board of admissions. The admissions process begins at the time of matriculation at the University of Tennessee, Knoxville, whether the student enters as a freshman or transfer student.

Students must maintain a 2.7 undergraduate cumulative GPA to be admitted to the teacher education program. It is important to note that all professional education courses must be passed with a minimum letter grade of C or better or they must be repeated.

Requirements for the Bachelor of Science in Agriculture
• Agricultural Science Major • Agricultural Education Concentration
First Year Hours Credit
Agriculture and Natural Resources 100 ...................................... 1
Agriculture and Natural Resources 290 .................................... 3
Animal Science 160 or 280 ................................................ 3
Biological Science and Technology 101 ................................. 3
English 101*, 102* ............................................................. 3
Mathematics 113* and Quantitative Reasoning course* .......... 6
Economics 201* .................................................................. 4
Communication Studies 210* .............................................. 3
Second Year
Agricultural Economics 212 ........................................... 3
Agricultural and Extension Education 211 .......................... 3
Agricultural and Extension Education 201 .......................... 1
Biosystems Engineering Technology 202 .......................... 3
Chemistry 100*, 110* or 120*, 130* .............................. 2-3
Environmental and Soil Sciences 210 ......................... 1-2
Food Science and Technology 269 ............................... 2
1, 2Arts and Humanities Elective .................................. 3
Plant Sciences 120 and 335 ........................................... 5
1, 2Social Sciences Elective* ........................................... 3

Third Year
Agricultural Economics 342 ........................................... 3
Agricultural and Extension Education 345 ......................... 3
Educational Psychology 210 ........................................... 3
Cultural Studies in Education 400 ................................. 2
Educational Psychology 401 ........................................... 2
Special Education 402 .................................................. 2
Entomology and Plant Pathology 313 or 321 ...................... 3
1, 2Cultures and Civilizations Elective* .............................. 3
3Health Elective ......................................................... 3
Plant Sciences 330 or 430 .............................................. 2-3

Fourth Year
Agricultural and Extension Education 435 and 436 ............... 12
Agricultural and Extension Education 434 ......................... 3
Animal Science 381 ..................................................... 3
Biosystems Engineering Technology 452 ......................... 3
1, 2Cultures and Civilizations Elective* .............................. 3
1, 2Arts and Humanities Elective* .................................. 3
Free Electives ............................................................ 1-2

Total 124

* Meets University General Education Requirement.
1 Choose from the University General Education lists.
2 One of the University General Education Electives or Free Electives must be a writing-intensive (WC) course.
3 Health elective list is available and should be selected in conference with academic advisor.

AGRICULTURAL EXTENSION EDUCATION CONCENTRATION
http://aee.tennessee.edu/
Professor
Waters, R.G., PhD ..................................................... Penn State
Assistant Professor
Fritz, C.A., PhD ..................................................... Iowa State
Emeriti Faculty
Lessly, R.R., EdD ..................................................... Oklahoma State
Todd, J.D., EdD ..................................................... Illinois

The agricultural extension education concentration is designed to prepare students to gain the agricultural and educational skills necessary to work in the national Cooperative Extension System or the Agricultural Extension Service in Tennessee. The agricultural extension agent is a generalist in agriculture who plans and delivers non-formal educational programs for local citizens and community groups. The extension agent has an understanding of community needs, educational program planning, and the non-formal learner, as well as a broad background in the disciplines of agriculture and natural resources.

Students must maintain a 2.7 undergraduate cumulative GPA to be considered for employment in the Tennessee Agricultural Extension Service. Other states may or may not have established GPA requirements for employment.

Requirements for the Bachelor of Science in Agriculture
• Agricultural Science Major • Agricultural Extension Education Concentration
First Year
<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural and Extension Education 211</td>
<td>3</td>
</tr>
<tr>
<td>Agriculture and Natural Resources 100</td>
<td>1</td>
</tr>
<tr>
<td>Agriculture and Natural Resources 290</td>
<td>1</td>
</tr>
<tr>
<td>Animal Science 280</td>
<td>3</td>
</tr>
<tr>
<td>Biology 101*, 102* or 130*-140*</td>
<td>8</td>
</tr>
<tr>
<td>English 101*, 102*</td>
<td>6</td>
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</tbody>
</table>
Second Year
<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural and Extension Education 211</td>
<td>3</td>
</tr>
<tr>
<td>Agriculture and Natural Resources 100</td>
<td>1</td>
</tr>
<tr>
<td>Agriculture and Natural Resources 290</td>
<td>1</td>
</tr>
<tr>
<td>Animal Science 280</td>
<td>3</td>
</tr>
<tr>
<td>Biology 101*, 102* or 130*-140*</td>
<td>8</td>
</tr>
<tr>
<td>English 101*, 102*</td>
<td>6</td>
</tr>
</tbody>
</table>
2 Requirements for the business administration minor are Accounting 200 (3); Economics 201 (4); Statistics 201 (3); Business Administration 201 (4); Finance 301 (3); Marketing 300 (3); Management 300 (3). Total 23 hours.

3 Requirements for the agricultural economics and business minor are Economics 201 (4); Accounting 200 (3); Agricultural Economics 212, 342, 350, 412 (12); Agricultural Economics elective (3). Total 22 hours.

4 Requirements for the communication and information minor are Communication and Information 150 (3); select 6 hours from Advertising 250, Communication Studies 201; Information Sciences 102, Journalism and Electronic Media 200 or 275, or Public Relations 270; select 9 hours of 300-level or above from one or more of the following areas: advertising, communication studies, information sciences, journalism and electronic media, or public relations. Total 18 hours.

SCIENCE/TECHNOLOGY CONCENTRATION
Requirements for the Bachelor of Science in Animal Science • Animal Science Major • Science/Technology Concentration

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Science 160</td>
<td>3</td>
</tr>
<tr>
<td>Biology 130*-140*</td>
<td>3-8</td>
</tr>
<tr>
<td>English 101*-102*</td>
<td>6</td>
</tr>
<tr>
<td>Mathematics 125* or 141* or 151*</td>
<td>6-8</td>
</tr>
<tr>
<td>Chemistry 100*-110* or 120*-130*</td>
<td>8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Year</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Science 220, 280*</td>
<td>6</td>
</tr>
<tr>
<td>Agriculture and Natural Resources 290</td>
<td>3</td>
</tr>
<tr>
<td>Environmental and Soil Sciences 210</td>
<td>4</td>
</tr>
<tr>
<td>Communication Studies 210* or 240*</td>
<td>6</td>
</tr>
<tr>
<td>Economics 201*</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Arts and Humanities Electives&quot;</td>
<td>6-8</td>
</tr>
<tr>
<td>Business Administration minor or</td>
<td>3</td>
</tr>
<tr>
<td>&quot;Agricultural Economics and Business minor or&quot;</td>
<td>3</td>
</tr>
<tr>
<td>&quot;Communication and Information minor&quot;</td>
<td>3</td>
</tr>
<tr>
<td>&quot;Social Science Elective&quot;</td>
<td>3</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Third Year</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Science 320, 330, 340, 380, 395</td>
<td>13</td>
</tr>
<tr>
<td>Biological Science Restricted Elective</td>
<td>3</td>
</tr>
<tr>
<td>&quot;Cultures and Civilizations Elective&quot;</td>
<td>6</td>
</tr>
<tr>
<td>Animal Science 360*</td>
<td>3</td>
</tr>
<tr>
<td>Business Administration minor or</td>
<td>3</td>
</tr>
<tr>
<td>&quot;Agricultural Economics and Business minor or&quot;</td>
<td>3</td>
</tr>
<tr>
<td>&quot;Communication and Information minor&quot;</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fourth Year</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Science 495</td>
<td>1</td>
</tr>
<tr>
<td>Select two courses from: Animal Science 481 or 482; Animal Science 483 or 484; Animal Science 485 or 489</td>
<td>6</td>
</tr>
<tr>
<td>&quot;Arts and Humanities Elective&quot;</td>
<td>3</td>
</tr>
<tr>
<td>Biological Science Restricted Elective</td>
<td>3</td>
</tr>
<tr>
<td>&quot;Cultures and Civilizations Elective&quot;</td>
<td>3</td>
</tr>
<tr>
<td>Social Science Elective</td>
<td>3</td>
</tr>
<tr>
<td>Business Elective</td>
<td>3</td>
</tr>
<tr>
<td>Free Electives</td>
<td>7-9</td>
</tr>
</tbody>
</table>

Total 124

* Meets University General Education Requirement.
1 Courses selected from University General Education lists. Animal Science 280 satisfies the WC requirement. Animal Science 360 satisfies the OC requirement.
2 Requirements for the business administration minor are Accounting 200 (3); Economics 201 (4); Statistics 201 (3); Business Administration 201 (4); Finance 301 (3); Marketing 300 (3); Management 300 (3). Total 23 hours.

SCIENCE/TECHNOLOGY – PRE-VETERINARY MEDICINE CONCENTRATION
Requirements for the Bachelor of Science in Animal Science • Animal Science Major • Science/Technology – Pre-Veterinary Medicine Concentration

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Science 160</td>
<td>3</td>
</tr>
<tr>
<td>Biology 130*-140*</td>
<td>3-8</td>
</tr>
<tr>
<td>English 101*-102*</td>
<td>6</td>
</tr>
<tr>
<td>Mathematics 125* or 141* or 151* and second approved Quantitative Reasoning course</td>
<td>6-8</td>
</tr>
<tr>
<td>Chemistry 120*-130*</td>
<td>8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Year</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Science 220, 280*</td>
<td>6</td>
</tr>
<tr>
<td>Agriculture and Natural Resources 290</td>
<td>3</td>
</tr>
<tr>
<td>Communication Studies 210* or 240* or Animal Science 360*</td>
<td>3</td>
</tr>
<tr>
<td>Biological Science Restricted Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

Total 124

* Meets University General Education Requirement.
1 Courses selected from University General Education lists. Animal Science 280 satisfies the WC requirement. Animal Science 360 satisfies the OC requirement.
Students must begin this program early in the pre-veterinary curriculum. The first two semesters in the College of Veterinary Medicine (CVM).

PRE-VETERINARY MEDICINE PROGRAM (3+1)

This program allows students to be awarded a Bachelor of Science in Animal Science after the successful completion of the first two semesters in the College of Veterinary Medicine (CVM). Students must begin this program early in the pre-veterinary curriculum. The specific requirements are as follows.

- Completion of all pre-veterinary requirements.
  - English Composition 101-102 (3,3) – 6 hours; Humanities and Social Sciences – 18 hours; Elements of Physics 221-222 (4,4) – 8 hours; General Chemistry 120-130 (4,4) – 8 hours; Organic Chemistry 350-360 and Laboratory 369 (3,3,2) – 8 hours; Cellular and Comparative Biochemistry 401 (4) – 4 hours; General Biology 130-140 (4,4) – 8 hours; Biology 240 – 4 hours or Animal Science 340 – 3 hours; Biology Elective – 4 hours.
- The last 30 hours of the three-year pre-veterinary curriculum must be taken at the University of Tennessee, Knoxville.
- At least 12 hours of upper-division (300- and 400-level courses) technical agriculture courses must be taken at the University of Tennessee, Knoxville.
- In addition to all the required pre-veterinary medical courses, the following (or approved equivalents) must be completed before entering the College of Veterinary Medicine.
  - Mathematics 125 or 141 or 151 plus any QR; Animal Science 160 – 3 hours; Animal Science 220 – 3 hours; Animal Science 320 – 3 hours; Animal Science 330 – 3 hours; Animal Science 340 – 3 hours; Animal Science 380 – 3 hours; Agriculture and Natural Resources 290 – 3 hours; Economics 201 – 4 hours; Communication Studies 210 or 240 or Animal Science 360 – 3 hours.

This curriculum meets the requirements for entrance to the College of Veterinary Medicine and after the first successful year in the College of Veterinary Medicine, the student will be awarded a Bachelor of Science in Animal Science. Should the student not gain admittance to the College of Veterinary Medicine after the junior year, the student could complete the requirements for a major in animal science during the senior year.

Minor in Animal Science

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Science 220</td>
<td>3</td>
</tr>
<tr>
<td>Animal Science 280</td>
<td>3</td>
</tr>
<tr>
<td>Animal Science 381</td>
<td>3</td>
</tr>
<tr>
<td>Animal Science 480 Series</td>
<td>3</td>
</tr>
<tr>
<td>Nine credits from Animal Science 320, 330, 340, 360, 380, 420, 430, and the 480 Series</td>
<td>9</td>
</tr>
</tbody>
</table>

Total 21

NOTE: The core courses give the student a broad background in physiology, nutrition, and management. Careful selection of the directed electives allows the student to emphasize physiological reproduction, nutrition, or management.

DEPARTMENT OF BIOSYSTEMS ENGINEERING AND SOIL SCIENCE

http://bioengr.ag.utk.edu

Ike Sewell, Interim Head

Professors

Ammons, J.T., PhD ............................................ West Virginia
Ayers, P.D., PhD, PE .......................................... North Carolina State
Buschermohle, M.J., PhD ................................. Clemson
Essington, M.E., PhD ....................................... California (Riverside)
Freeland, R.S., PhD, PE ................................... Tennessee
Mote, C.R. (Assistant Dean, Tennessee Agricultural Experiment Station), PhD, PE ...................................... Ohio State
pre-professional concentration is available. The degree program
In addition to the standard biosystems engineering curriculum, a
systems and their components is emphasized in the senior year.

design skills needed to solve engineering problems related to
ments of the university apply.

ta and geometry. Otherwise, the general admission require-
ment agencies, research and testing organizations, and educa-
opportunities are available in a wide variety of industries, govern-
emments technology. Minors in either environmental and soil sciences
ed in environmental science, soil science, and agricultural sys-
technology. Minors in either environmental and soil sciences or in biosystems engineering technology are also available. More
detailed descriptions of each program are included with the cur-
rucal material that follows.

In order to provide students with the best advice concerning
course selection, general academic success, and career choices,
the programs within the Department of Biosystems Engineer-
ing and Soil Science require that all undergraduates meet with their academic advisors every semester before regis-
tering for classes.

The Department of Biosystems Engineering and Soil Science
offers two undergraduate degree programs – Bachelor of Sci-
ence in Biosystems Engineering and Bachelor of Science in Envi-
rornmental and Soil Sciences. Biosystems engineering is a four-
year, ABET-accredited engineering program emphasizing engi-
eering applications to biological systems. Environmental and soil
sciences is a strong science-based program for students interest-
ed in environmental science, soil science, and agricultural sys-
tem technology. Minors in either environmental and soil sciences or in biosystems engineering technology are also available. More
detailed descriptions of each program are included with the cur-
nucal material that follows.

In order to provide students with the best advice concerning
course selection, general academic success, and career choices,
the programs within the Department of Biosystems Engineer-
ing and Soil Science require that all undergraduates meet with their academic advisors every semester before regis-
tering for classes.

The biosystems engineering program at the University of Ten-
nessee, Knoxville, has specific educational objectives that follow
the objectives of the University of Tennessee Institute of Agric-
ture. In order to meet the Institute’s objectives, program gradu-
ates will receive the educational tools necessary to perform as
entry-level engineering professionals. Recent graduates are to be

- Competitive in seeking employment at the regional and
  national levels.
- Aware of meeting their own and societal needs consistent
  with the goals of life-long learning, professional ethics,
  and leadership.
- Performing as entry-level engineers in a manner that pos-
itively reflects on the overall program’s reputation.

Program Outcomes

To achieve the educational objectives listed above, a series of
program outcomes have been adopted. These program out-
comes provide specific measures to determine the degree of
success in meeting each of the educational objectives. These
outcomes are as follows.

- An ability to apply knowledge of mathematics, science, and
  engineering.
- An ability to design and conduct experiments, as well as to
  analyze and interpret data.
- An ability to design a system, component, or process to
  meet desired needs.
- An ability to function on multi-disciplinary teams.
- An ability to identify, formulate, and solve engineering
  problems.
- An understanding of professional and ethical responsibili-
y.
- An ability to communicate effectively.
- The broad education necessary to understand the impact
  of engineering solutions in a global and societal context.
- A recognition of the need for, and an ability to engage in,
  life-long learning.
- A knowledge of contemporary issues.
- An ability to use the techniques, skills, and modern engi-
  neering tools necessary for engineering practice.
- An understanding of the complexity of biological systems,
  and the ability to apply engineering principles to those
  systems.

One of the primary tools engineers bring to the solution of
many problems is a mastery of mathematics, so mathematical
competence is a critical component of an engineering education.
In order to graduate with a major in biosystems engineering,
students must display this competence by achieving an average
GPA of at least 2.0 in the required mathematics courses. It is the
student’s responsibility to work with their academic advisor in
assuring that they meet this requirement.
### Requirements for the Bachelor of Science in Biosystems Engineering - Biosystems Engineering Major

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biosystems Engineering 104</td>
<td>1</td>
</tr>
<tr>
<td>Engineering Fundamentals 105, 151, 152, 202</td>
<td>11</td>
</tr>
<tr>
<td>¹Chemistry 120*</td>
<td>4</td>
</tr>
<tr>
<td>¹Chemistry 120*</td>
<td>4</td>
</tr>
<tr>
<td>¹English 101*, 102*</td>
<td>6</td>
</tr>
<tr>
<td>²Arts and Humanities Elective*</td>
<td>3</td>
</tr>
<tr>
<td>³Fluid Science Elective</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Year</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biosystems Engineering 201, 221, 231, 321</td>
<td>10</td>
</tr>
<tr>
<td>Mechanical Engineering 231, 321</td>
<td>6</td>
</tr>
<tr>
<td>Nuclear Engineering 203</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics 231, 241</td>
<td>7</td>
</tr>
<tr>
<td>Microbiology 210*</td>
<td>3</td>
</tr>
<tr>
<td>Environmental and Soil Sciences 210</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Third Year</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biosystems Engineering 411, 416, 431, 451</td>
<td>13</td>
</tr>
<tr>
<td>Statistics 251</td>
<td>3</td>
</tr>
<tr>
<td>Electrical and Computer Engineering 301</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics 200</td>
<td>1</td>
</tr>
<tr>
<td>⁴Fluid Science Elective</td>
<td>3</td>
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<tr>
<td>⁵Technical Elective</td>
<td>3</td>
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<tr>
<td>⁶Arts and Humanities Elective*</td>
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<tr>
<td>English 360*</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18</strong></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Fourth Year</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biosystems Engineering 401*, 402, 404, 444</td>
<td>14</td>
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<tr>
<td>⁵Technical Elective</td>
<td>3</td>
</tr>
<tr>
<td>Economics 201 (Social Sciences Elective)*</td>
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</tr>
<tr>
<td>⁶Arts and Humanities Elective*</td>
<td>3</td>
</tr>
<tr>
<td>⁷Social Sciences Elective*</td>
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<tr>
<td>⁸Arts and Humanities Elective*</td>
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<tr>
<td>⁹Technical Elective</td>
<td>3</td>
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<tr>
<td><strong>Total</strong></td>
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</tr>
</tbody>
</table>

* Meets University General Education Requirement.
1 Or equivalent honors course.
2 If mathematics placement test does not indicate placement into at least Mathematics 141, discuss mathematics options with advisor.
3 Select from Civil and Environmental Engineering 390 or Aerospace Engineering 341 after consultation with advisor.
4 Select from the corresponding University General Education list after consultation with advisor.
5 Typically, upper-division courses in engineering or related areas. Must be approved in advance by advisor.

### PRE-PROFESSIONAL CONCENTRATION

The pre-professional concentration provides comprehensive training in biosystems engineering while preparing the student for candidacy to medical school. While this program meets most of the general published pre-medical requirements, it is the student's responsibility to work with an academic advisor to ensure that his or her program meets the demands of specific schools.

### Requirements for the Bachelor of Science in Biosystems Engineering - Biosystems Engineering Major • Pre-Professional Concentration

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Biosystems Engineering 104</td>
<td>1</td>
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<tr>
<td>Engineering Fundamentals 105, 151, 152, 202</td>
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<tr>
<td>¹Chemistry 120*, 130*</td>
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<tr>
<td>¹Chemistry 120*, 130*</td>
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<tr>
<td>¹English 101*, 102*</td>
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<tr>
<td>Biosystems Engineering 201, 221, 231, 321</td>
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<tr>
<td>Mechanical Engineering 231, 321</td>
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<tr>
<td>Nuclear Engineering 203</td>
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<td>Chemistry 350</td>
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<td>Electrical and Computer Engineering 301</td>
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<td>Mathematics 200</td>
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<td>³Fluid Science Elective</td>
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<td>Biosystems Engineering 401*, 402, 404, 444</td>
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<tr>
<td>⁴Social Sciences Elective*</td>
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<tr>
<td>⁵Arts and Humanities Elective*</td>
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<tr>
<td>⁶Arts and Humanities Elective*</td>
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</table>

* Meets University General Education Requirement.
1 Or equivalent honors course.
2 If mathematics placement test does not indicate placement into at least Mathematics 141, discuss mathematics options with advisor.
3 Select from Civil and Environmental Engineering 390 or Aerospace Engineering 341 after consultation with advisor.
4 Select from the corresponding University General Education list after consultation with advisor.

### Minor in Biosystems Engineering Technology

**Advisors**
Ayers, Freeland, Hart, Wilkerson, Womac, Yoder

No baccalaureate degree program is offered in biosystems engineering technology; however, seven undergraduate courses are offered to prepare students in other disciplines to apply elementary principles, techniques, and systems of engineering to the broad industry of agriculture.

### Required Courses

<table>
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<tr>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Biosystems Engineering Technology 202 or 212, 326, and 432</td>
</tr>
<tr>
<td>Select three from 414, 422, 434, 442, 452, 462, 474</td>
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<td><strong>Total</strong></td>
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</tbody>
</table>

### ENVIRONMENTAL AND SOIL SCIENCES MAJOR

**Advisors**
Eash, Essington, Hart, Lee, Logan, Radosevich

Many human activities adversely impact soil, water, and environmental quality. The Bachelor of Science in Environmental and Soil Sciences provides students with a strong grounding in basic sciences and technology to prepare them for careers in environmental and natural resource management. Students in this program study basic natural sciences as well as applied areas such as ecology, soil sciences, and natural resource policy. Students also build expertise with modern technologies such as geographical information systems, global positioning systems, and computer applications in natural resource management. Graduates are prepared to work in a wide variety of interesting and challenging career paths and to work with a broad variety of other professionals to solve complex problems. Examples of potential careers include soil and environmental specialists and scientists; state and federal regulatory agency work; private consulting in environmental and agricultural areas; and working with non-governmental organizations with interests in agriculture, environment, and natural resources. Students receiving this degree are also very competitive for placement in graduate programs in environmental sciences and technology, as well as law school.

The core program provides a strong grounding in the sciences and technology, while concentrations permit a focus on either science or technology. The three concentrations in this program are soil science, environmental science, and agricultural systems technology.

### TECHNICAL ELECTIVES FOR SOIL SCIENCE AND ENVIRONMENTAL SCIENCE CONCENTRATIONS

Note that some electives have required prerequisites. The prerequisites are either required in the major or are listed below. See individual course descriptions in the catalog for specific information.
Animal Science 220, 280, 320, 330, 380, 381; Biochemistry and Cellular and Molecular Biology 306, 310, 321, 401, 402, 404, 411, 471, 481; Biology 240, 250; Biosystems Engineering Technology (any course not required for the major); Chemistry 230, 319, 320, 329, 350, 360, 369, 430, 439, 471; Evolutionary Biology 240, 304, 305, 330, 370, 380, 410, 414, 421, 433, 470, 474, 484, 495; Entomology and Plant Pathology 313, 321, 451; Environmental and Soil Sciences (any course not required for the major); Food Science and Technology 420, 429; Forestry 314, 321; Forestry, Wildlife and Fisheries 300, 312, 313, 317, 410, 412, 420; Geology 101, 102, 131, 132, 310, 334, 410, 411, 412, 413, 415, 434, 436, 439; Geology 202, 102, 202, 203, 310, 354, 370, 381, 450, 455, 485, 486; Management 301, 321, 431; Microbiology 310, 319, 410, 411, 470; Physics 222; Plant Sciences 335, 434, 435, 457, 461; Political Science 300, 330, 340, 402, 340, 431, 440, 442, 470; Public Health 310; Sociology, 360, 462, 464, 465; Statistics (any course above 201); University Studies 322.

### TECHNICAL ELECTIVES FOR AGRICULTURAL SYSTEMS TECHNOLOGY CONCENTRATION

Note that some electives have required prerequisites. The prerequisites are either required in the major or are listed below. See individual course descriptions in the catalog for specific information.

Agricultural and Extension Education 450; Agricultural Economics 342, 350, 355; Biosystems Engineering Technology 202, 442, 452, 482; Business Administration 201, 381; Entomology and Plant Pathology 325, 410; Environmental and Soil Sciences 442, 444, 462; Geography 413; Industrial Engineering 304, 423; Management 471; Plant Sciences 340, 410, 430, 440.

### AGRICULTURAL SYSTEMS TECHNOLOGY CONCENTRATION

The agricultural systems technology concentration emphasizes the skills needed to manage the sophisticated technological systems that are increasingly essential to modern agricultural production. The program starts with a basic science foundation, adds courses in crop production, pest control, and protection of soil and water resources, then introduces the technologies and control systems available to make production more efficient and environmentally sound. It rounds out the curriculum with analysis and management courses to tie all the information together and to most effectively use it in making and carrying out management decisions. Directed technical electives allow the student to concentrate in a particular area of agricultural production or to develop increased skills with particular technologies or management tools. Students from this program will have the skills and understanding to be successful in agribusiness, agricultural consulting, or employment with agricultural equipment and material suppliers.

### Requirements for the Bachelor of Science in Environmental and Soil Sciences • Environmental and Soil Sciences Major • Agricultural Systems Technology Concentration

#### First Year

<table>
<thead>
<tr>
<th>Course</th>
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<td>Chemistry 120*, 130*</td>
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<td>English 101*, 102*</td>
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<td>Mathematics 151*, 152*</td>
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<tr>
<td>&quot;Social Sciences Elective&quot;</td>
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#### Second Year

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Agricultural Economics 212</td>
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<tr>
<td>Agriculture and Natural Resources 290</td>
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<tr>
<td>Biosystems Engineering Technology 212</td>
<td>3</td>
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<tr>
<td>&quot;Cultures and Civilizations Elective&quot;</td>
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<tr>
<td>Economics 201*</td>
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<tr>
<td>Environmental and Soil Sciences 210, 334</td>
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<tr>
<td>Communication Studies 210* or 240*</td>
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#### Third Year

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<td>Accounting 200</td>
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<tr>
<td>Agricultural Economics 350 or 355</td>
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<td>&quot;Arts and Humanities Elective&quot;</td>
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<tr>
<td>Biosystems Engineering Technology 326</td>
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### Requirements for the Bachelor of Science in Environmental Science Concentration

The environmental science concentration is a blended program of science and technology that provides a strong, broad background in the natural sciences. The plan of study emphasizes human impacts on the long-term use and productivity of land and water resources. Emphasis is also placed on the tools and techniques used in management of these resources. The curriculum provides a good foundation in the collection and analysis of the information required to characterize resource conservation problems and to make good resource use decisions. Directed technical electives allow the students to concentrate in an area of interest. Students in this program will gain the practical knowledge necessary to compete for career opportunities in government, environmental consulting firms, public health services, environmental research laboratories, and agricultural production, while also gaining the theoretical training necessary for continuing on for advanced degrees in a variety of environmentally related fields.

#### Requirements for the Bachelor of Science in Environmental Science Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
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<tbody>
<tr>
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<tr>
<td>Chemistry 120*, 130*</td>
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<td>English 101*, 102*</td>
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<td>Environmental and Soil Sciences 120*</td>
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<td>Mathematics 151*, 152*</td>
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#### Second Year

<table>
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<tr>
<th>Course</th>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Agriculture and Natural Resources 290</td>
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<tr>
<td>Biosystems Engineering Technology 212</td>
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<tr>
<td>&quot;Cultures and Civilizations Elective&quot;</td>
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<tr>
<td>Economics 201*</td>
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<tr>
<td>Environmental and Soil Sciences 201</td>
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<td>Geology 101*</td>
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<tr>
<td>Microbiology 210*</td>
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<td>Statistics 201*</td>
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<td>Physics 221*</td>
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#### Third Year

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<th>Course</th>
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<td>English 295* or 360* or Journalism and Media 210*</td>
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<td>Biosystems Engineering Technology 326</td>
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<tr>
<td>Chemistry 350 or 110*</td>
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<tr>
<td>Philosophy 245*</td>
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<td>Technical Elective</td>
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#### Fourth Year

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<th>Course</th>
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<tr>
<td>Agricultural Economics 470 or Economics 462</td>
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<tr>
<td>or Industrial Engineering 405</td>
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<tr>
<td>Biosystems Engineering Technology 212 or 474</td>
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<tr>
<td>Environmental and Soil Sciences 434, 444, 462</td>
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</tbody>
</table>

* Meets University General Education Requirement.
† Choose from the University General Education lists.
SOIL SCIENCE CONCENTRATION

This concentration is a rigorous, science-based program for students interested in the field of soil science. The curriculum emphasizes soils and their long-term use and productivity, as well as surface and sub-surface water resources. Students will understand natural resource problems and their management, including soil and water conservation issues, land use problems, waste disposal, and reclamation of disturbed lands. Other areas of interest can be addressed through the appropriate selection of technical electives in the program. Students in this program will gain the practical knowledge necessary to compete for career opportunities in government, environmental consulting firms, public health services, environmental research laboratories, and agricultural production, while also gaining the theoretical training necessary for continuing on for advanced degrees in a number of environmentally related fields.

Requirements for the Bachelor of Science in Environmental and Soil Sciences • Environmental and Soil Sciences Major

### * Soil Science Concentration

**First Year**

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<tr>
<td>Biology 130*, 140*</td>
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<td>Chemistry 120*, 130*</td>
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<td>English 101*, 102*</td>
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<td>Environmental and Soil Sciences 120*</td>
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<tr>
<td>Mathematics 151*, 152*</td>
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**Second Year**

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<tr>
<td>Agriculture and Natural Resources 290</td>
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<td>Arts and Humanities Elective*</td>
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<tr>
<td>Cultures and Civilizations Elective*</td>
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<td>Economics 201*</td>
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<tr>
<td>Environmental and Soil Sciences 210</td>
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<td>Geology 101*</td>
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<td>Microbiology 210*</td>
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**Third Year**

<table>
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<td>Biology 110* or 350</td>
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<td>Chemistry 310 and 319</td>
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<td>Environmental and Soil Sciences 301*, 324, 334, 355</td>
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<td>Philosophy 245*</td>
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<td>Plant Science 335</td>
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<td>Technical Electives</td>
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<td>English 295* or 360*, or Journalism and Electronic Media 200*</td>
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**Fourth Year**

<table>
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<tbody>
<tr>
<td>Agricultural Economics 470 or Economics 462</td>
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<td>Environmental and Soil Sciences 434, 442, 444, 462</td>
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<td>Technical Electives</td>
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<td>Free Electives</td>
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Total 124

* Meets University General Education Requirement.

### Minor in Environmental and Soil Sciences

#### Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>Environmental and Soil Sciences 210, 324, 334</td>
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<tr>
<td>Electives in Environmental and Soil Sciences and/or Biosystems Engineering Technology at the 300 level or higher</td>
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Total 19

### DEPARTMENT OF ENTOMOLOGY AND PLANT PATHOLOGY

http://eppserver.ag.utk.edu

Carl J. Jones, Head

**Professors**

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Institution</th>
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<tbody>
<tr>
<td>Bernard, E.C., PhD</td>
<td></td>
<td>Georgia</td>
</tr>
<tr>
<td>Bost, S.C., PhD</td>
<td></td>
<td>North Carolina State</td>
</tr>
<tr>
<td>Burgess, E.E., PhD</td>
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<td>Tennessee</td>
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<tr>
<td>Gerhardt, R.R., PhD</td>
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<td>North Carolina State</td>
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<tr>
<td>Grant, J.F., PhD</td>
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<td>Clemson</td>
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<tr>
<td>Hale, F.A., PhD</td>
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<td>Ohio State</td>
</tr>
<tr>
<td>Jones, C.J., PhD</td>
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<td>Wyoming</td>
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<tr>
<td>Lambdin, P.L., PhD</td>
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<td>Virginia Tech</td>
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<tr>
<td>Newman, M.A., PhD</td>
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<td>Texas A&amp;M</td>
</tr>
<tr>
<td>Patrick, C.R., PhD</td>
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<td>Mississippi State</td>
</tr>
<tr>
<td>Skinner, J.A., PhD</td>
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<td>California (Davis)</td>
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<td>Trigiano, R.N., PhD</td>
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<tr>
<td>Windham, A.S., PhD</td>
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**Associate Professors**

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<tr>
<td>Canaday, C.H., PhD</td>
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<tr>
<td>Lentz, G., PhD</td>
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<tr>
<td>Owney, B.H., PhD</td>
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<tr>
<td>Stewart, S.D., PhD</td>
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<td>Auburn</td>
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<tr>
<td>Vail, K.M., PhD</td>
<td></td>
<td>Florida</td>
</tr>
</tbody>
</table>

**Assistant Professors**

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hajmornad, M., PhD</td>
<td></td>
<td>Adelaide (Australia)</td>
</tr>
<tr>
<td>Jurat-Fuentes, J.L., PhD</td>
<td></td>
<td>Georgia</td>
</tr>
<tr>
<td>Lamour, K., PhD</td>
<td></td>
<td>Michigan State</td>
</tr>
<tr>
<td>Moulton, J.K., PhD</td>
<td></td>
<td>Arizona</td>
</tr>
</tbody>
</table>

**Advisor**

Gerhardt

Courses in economic entomology, diseases and insect of ornamental plants, forest protection, plant pathology, and veterinary entomology are available to undergraduate students. No undergraduate degree exists in the Department of Entomology and Plant Pathology, but a program leading to the Master of Science degree with a major in entomology and plant pathology and a PhD with a major in plants, soils and insects and concentrations in entomology, plant pathology, integrated pest management, and bioactive natural products are available (see Graduate Catalog). Instruction and training is provided in those disciplines which deal with the natural hazards that are major causes of losses in agricultural production, namely, insects and plant diseases. Courses of study in entomology or plant pathology should give the student an appreciation of insects and microorganisms, their ecology, population dynamics, potential damage to plants and their products, and various considerations in control alternatives.

### Minor in Entomology and Plant Pathology

#### Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Environmental and Soil Sciences 201, 213, 321, 325, 410, 411, 448, 451, 493</td>
<td></td>
<td>16</td>
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</tr>
</tbody>
</table>

Total 16

### DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY

http://foodscience.utk.edu

P.M. Davidson, Interim Head

**Professors**

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brekke, C.J. (Assistant Dean), PhD</td>
<td></td>
<td>Wisconsin</td>
</tr>
<tr>
<td>Davidson, P.M., PhD</td>
<td></td>
<td>Washington State</td>
</tr>
<tr>
<td>Draughon, F.A., PhD</td>
<td></td>
<td>Georgia</td>
</tr>
<tr>
<td>Goan, H.C., PhD</td>
<td></td>
<td>Michigan State</td>
</tr>
<tr>
<td>Morris, W.C., PhD</td>
<td></td>
<td>Iowa State</td>
</tr>
</tbody>
</table>
Associate Professors
Golden, D.A., PhD ................................. Georgia
Loveday, H.D., PhD ................................. Kansas State
Mount, J.R., PhD ................................. Ohio State
Assistant Professors
Harte, F.M., PhD ................................. Washington State
Zivanovic, S., PhD ................................. Arkansas
Emeritus Faculty
Penfield, M.F., PhD ................................. Tennessee
Advisors
Davidson, Draughn, Golden, Loveday, Mount, Zivanovic

The curriculum concentrations in food science and technology include a science concentration, a technology/business concentration, and a pre-professional concentration. They prepare students to apply basic scientific and business principles to manufacturing, processing, distribution, and utilization of food products that meet the needs and desires of consumers. Coursework emphasizes the basic principles of converting raw food materials into safe acceptable consumer products. Selected commodity courses detail processing of specific types of food materials. Students entering the program should have an interest in the sciences, such as chemistry, microbiology, and biology.

Career opportunities include positions in the food industry in quality assurance, production management, marketing, governmental inspection, etc. The science concentration of coursework conforms to the guidelines in the model curriculum of the Institute of Food Technologists. The technology/business concentration allows students to obtain an agribusiness or business minor or specialization in an area such as animal science or nutrition that strengthens the food science and technology major. A special problems course provides opportunity for practical training in food processing plants and laboratories or federal and state laboratories. The pre-professional concentration provides the science background necessary for medical, pharmacy, dental or veterinary medicine school and also allows the student to develop an understanding of food science principles that will apply to their chosen profession.

FOOD SCIENCE AND TECHNOLOGY MAJOR
PRE-PROFESSIONAL CONCENTRATION

The programs in pre-dental, pre-medicine, pre-pharmacy and pre-veterinary medicine allow students to be awarded a Bachelor of Science in Agriculture with a major in food science and technology after three years and the successful completion of the first year (two semesters) in UT-Memphis dental, medical, or pharmacy programs or the University of Tennessee College of Veterinary Medicine. The last 30 hours of the three-year curriculum must be taken at the University of Tennessee, Knoxville. A total of 124 hours must be completed by the end of the first year in professional school. No later than December 31 of the student's first year in professional school (s)he should contact the Department of Food Science and Technology to check on graduation procedures for this program.

Although a Bachelor of Science degree is not required for admission to the Colleges of Dentistry or Medicine, most of the students accepted into these programs have the baccalaureate degree before admission. Therefore, students are encouraged to plan to complete all requirements for Bachelor of Science degree before enrolling in either of these colleges. A Bachelor of Science degree can be obtained before enrolling in the Doctor of Pharmacy (PharmD) program.

Requirements for the Bachelor of Science in Agriculture
• Food Science and Technology Major • Pre-Professional Concentration

First Year  Hours Credit
1English* ................................. 6
2Mathematics 125* or 141* or 151* ................................. 3-4
3Biological Sciences* ................................. 4
Chemistry 120*-130* ................................. 8
Food Science and Technology 101 ................................. 3
Agriculture and Natural Resources 290 ................................. 3

Second Year
Chemistry 350, 360-369 ................................. 8
Microbiology 210* or higher ................................. 3
3Physics 221* ................................. 4
4Social Sciences Electives* ................................. 6
Food Science and Technology 340 ................................. 3
5Directed Science Requirements ................................. 12

Third Year
Food Science and Technology 301 or University Honors 117 ................................. 1
Food Science and Technology 410-419 and 420-429 ................................. 9
5Directed Science Requirements ................................. 9
4Arts and Humanities Electives* ................................. 6
Statistics 201* or Quantitative Reasoning Elective* ................................. 3
4Arts and Humanities Electives* ................................. 6

This curriculum meets the requirements for entrance to the College of Veterinary Medicine or UT medical, dental or pharmacy schools. After the first successful year in the professional school, the student will be awarded a Bachelor of Science in Agriculture with a major in food science and technology. Should the student not gain admittance after the junior year, the student could complete the following requirements during the senior year for a major in food science and technology with a pre-professional concentration.

Fourth Year
Food Science and Technology 401 or University Honors 458 ................................. 1
6Food Science and Technology Electives ................................. 9
Nutrition 100* ................................. 3
Communicating Orally Elective ................................. 1-3
Electives ................................. 6-9
Total 124

* Meets University General Education Requirement.
1 Select either English 101 and 102 or English 118 and 102 (Students who obtain a grade of A or B in 118 may complete their freshman requirement with 102, 355, or with a 200-level course in the English Department. The 200-level course may, if so listed, also be used toward the Arts and Humanities requirement.)
2 Mathematics placement depends on high school courses and grades and ACT scores.
3 Physics 222 is taken as a directed science elective for pre-professional programs that require it.
4 Choose from the University General Education lists. One of these courses must be a writing-intensive (WC) course.
5 Choose from Biochemistry and Cellular and Molecular Biology 230, 401, 402; Microbiology 430, Physics 222, Ecology and Evolutionary Biology 240; Biology 240, Food Science and Technology 415, 430, 441, 442, 445, 461, 490, 495 or 493 (maximum of 3 hours); or Nutrition 420.
6 Choose from Food Science and Technology 415, 430, 441, 442, 445, 461, 462, 490, 495 or 493 (maximum of 3 hours).

SCIENCE CONCENTRATION
Requirements for the Bachelor of Science in Agriculture
• Food Science and Technology Major • Science Concentration

First Year  Hours Credit
1English* ................................. 6
2Mathematics 125*, 141* or 151* ................................. 3-4
3Biological Sciences* ................................. 4
Chemistry 120*-130* ................................. 8
Food Science and Technology 101 ................................. 3
Agriculture and Natural Resources 290 ................................. 3
4Arts and Humanities Elective* ................................. 3
Second Year  
**Chemistry 350, 360-369** ........................................... 8  
**Microbiology 210* or higher** ........................................ 3  
**Physics** ..................................................................... 3-4  
**Social Sciences Electives* ............................................ 6  
**Arts and Humanities Elective* ....................................... 3  
**Food Science and Technology 340** ..................................... 3  
**Nutrition 100* or higher** .............................................. 3  

**Third Year**  
**Food Science and Technology 301 or University Honors 117** ........... 1  
**Food Science and Technology 410-419 and 430** ......................... 7  
**Food Science and Technology 441** ...................................... 3  
**Biochemistry and Cellular and Molecular Biology 310 or 401** .......... 4  
**Statistics 201* or Quantitative Reasoning Elective* ............... 3  
**Cultures and Civilizations Electives* .................................. 3  
**Communicating Orally Elective* ..................................... 1-3  

**Electives** .................................................................... 5-7  

**Fourth Year**  
**Food Science and Technology 401** ...................................... 1  
**Food Science and Technology 420-429** ................................ 5  
**Food Science and Technology 445, 461, 490, 495** ..................... 13  
**Food Science and Technology 415** ...................................... 4  
**Food Science and Technology 493** ...................................... 3  

**Electives** ..................................................................... 5-7  

* Meets University General Education Requirement.  
1 Select either English 101 and 102 or English 118 and 102. (Students who obtain a grade of A or B in 118 may complete their freshman requirement with 102, 355, or with a 200-level course in the English Department. The 200-level course may, if so listed, also be used toward the Arts and Humanities (AH) requirement.)  
2 Mathematics placement depends on high school courses and grades and ACT scores.  
3 Choose from Biology 101, 102, 111, 112 or 130.  
4 Choose from the University General Education lists. One of these courses must be a writing-intensive (WC) course.  
5 May be chosen from a physics course.  

**TECHNOLOGY/BUSINESS CONCENTRATION**  
**Requirements for the Bachelor of Science in Agriculture**  
• **Food Science and Technology Major**  
• **Technology/Business Concentration**  

**First Year**  
**English* ................................................................. 6  
**Mathematics 110* or 123* or 125* or higher** .......................... 3  
**Chemistry 100* or 120* .................................................. 3  
**Arts and Humanities Electives* ........................................ 6  
**Food Science and Technology 101** ..................................... 3  
**Agriculture and Natural Resources 290** ............................... 3  

**Second Year**  
**Chemistry 110* .......................................................... 4  
**Microbiology 210* or higher** .......................................... 3  
**Biological Sciences* .......................................................... 3  
**Social Sciences Electives* ................................................ 6  
**Directed Technology/Business Electives** ............................. 9  
**Food Science and Technology 340** .................................... 3  
**Nutrition 100* or Animal Science 381** ............................... 3  

**Third Year**  
**Food Science and Technology 301 or University Honors 117** ........ 1  
**Food Science and Technology 410-419 and 430** ...................... 7  
**Cultures and Civilizations Electives* .................................. 6  
**Directed Technology/Business Electives** ............................. 9  
**Communicating Orally Elective* ..................................... 1-3  
**Electives** ..................................................................... 3-5  

**Fourth Year**  
**Food Science and Technology 401** ..................................... 1  
**Food Science and Technology 420-429** ................................ 5  
**Food Science and Technology 445, 461, 490 and 495** .............. 13  
**Directed Technology/Business Electives** ............................. 6  
**Food Science and Technology 493** ..................................... 3  

**Electives** ..................................................................... 4  

**Minor in Food Science and Technology**  
**Required Courses**  

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
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<tr>
<td>Food Science and Technology 140</td>
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<td>Food Science and Technology 340</td>
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<td>Food Science and Technology 420</td>
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<tr>
<td>Food Science and Technology Electives</td>
<td>6</td>
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</tbody>
</table>

**Total 17**

**DEPARTMENT OF FORESTRY, WILDLIFE AND FISHERIES**  
http://fwf.ag.utk.edu/  
J. Larry Wilson, Interim Head

**Professors**
- Buehler, D.A., PhD ................................................. Virginia Tech  
- Bozelli, B.L., PhD ....................................................... Colorado State  
- Fly, J.M., PhD .............................................................. Michigan  
- Hodges, D.G., PhD ......................................................... Georgia  
- Houston, A.T., PhD ....................................................... Tennessee  
- Ostermeier, D.M., PhD ................................................... Syracuse  
- Rials, T.G., PhD ............................................................. Virginia Tech  
- Schlarbaum, S.E., PhD .................................................. Colorado State  
- Speer, C.A., PhD ............................................................. Utah State  
- Strange, R.J., PhD ......................................................... Oregon State  
- Wilson, J.L., PhD .............................................................. Tennessee

**Associate Professors**
- Buckley, D.S., PhD ...................................................... Michigan Tech  
- Bozelli, J.J., PhD ........................................................... Colorado State  
- Clatterbuck, W.W., PhD ................................................. Mississippi State  
- Harper, C.A., PhD ........................................................... Clemson  
- Hickling, G.J., PhD ......................................................... Western Ontario (Canada)  
- Muller, L.L., PhD .............................................................. Georgia  
- Young, T.M., MS ............................................................. Tennessee

**Assistant Professors**
- Eda, S., PhD ................................................................. Japan  
- Franklin, J.A., PhD ......................................................... Alberta (Canada)  
- Gray, M.J., PhD ............................................................... Texas Tech  
- Hargis, D.P., PhD ............................................................. Washington State  
- Labbe, N., PhD ................................................................. Bordeaux (France)  
- Taylor, M.M., PhD ............................................................ Oregon State  
- Wang, S., PhD ................................................................. Nanjing Forestry (China)

**Instructors**
- Minser, W.G., MS ........................................................... Tennessee  
- Moschier, W., MS ............................................................. Virginia Tech

**Adjunct Faculty**
- Albert, R., PhD ............................................................. Southern Illinois  
- Clark, J.D., PhD .............................................................. Arkansas  
- Franzreb, K., PhD ............................................................ Arizona State  
- Lannom, K.O., PhD .......................................................... Michigan Tech  
- Peine, J., PhD ................................................................. Auburn  
- Reams, G.A., PhD ............................................................. Maine  
- Van Manen, F., PhD .......................................................... Tennessee

**Emeriti Faculty**
- Buckner, E.R., PhD ......................................................... North Carolina State  
- Dimmick, R.W., PhD ........................................................ Wyoming  
- Hill, Sr., T.K., PhD ........................................................... Auburn  
- Pelton, M.R., PhD ............................................................ Georgia
Rennie, J.C., PhD ........................................ North Carolina State
Schneider, G., PhD ...................................... Michigan State
Stumbo, D.A., PhD ....................................... Minnesota

Forestry Advisors
Buckley, Fly, Franklin, Hodges, Ostermeier, Schlarbaum

Wildlife and Fisheries Advisors
Buehler, Gray, Minser, Muller, Strange, Wilson

The mission of the Department of Forestry, Wildlife and Fisheries is to advance the management, utilization, and appreciation of natural resources in Tennessee, the region, and beyond through programs in teaching, research, and extension. The department offers two majors. The major in forestry leads to the Bachelor of Science in Forestry and the major in wildlife and fisheries science leads to the Bachelor of Science in Wildlife and Fisheries Science. Each major has concentrations in forest resources management and wildland recreation. The wildlife and fisheries science major has concentrations in wildlife and fisheries management and wildlife health.

Enrollment Management Plan
All majors in the Department of Forestry, Wildlife and Fisheries must submit an application for progression with relevant career goals, names of three references, work experience (both volunteer and paid positions) related to natural resources and service and professional activities, and a transcript before registering for junior classes.

To be considered for progression into the upper division of the program, applicants must have submitted all required documents (application form, resume, and transcript) by a March 15 deadline late in the spring semester.

Those students who have met all preliminary requirements for progression, including having relevant career goals, will be ranked based on the combined score of their cumulative grade point average (GPA) and GPA in core courses. The combined score will be 50% cumulative GPA (minimum 2.2) and 50% cumulative GPA in core courses. The highest scores will be accepted into the programs. The number of applicants accepted into each program will be determined by the number of positions available. Applicants will be notified of their acceptance by the start of registration for the next semester.

Applicants who are not accepted into the program and who believe that extenuating circumstances prevented their acceptance into the program may appeal the decision to a faculty committee (i.e., S.A.C.). A written statement in which the case is made for acceptance is required for all applicants. It must be submitted within one week of the rejection notice.

Applicants receiving a positive response from the appeals committee will be accepted into programs on a provisional basis through the first semester of their junior year. The progress of provisional students will be reviewed at the end of the fall semester. At that time, they will either be fully admitted or released from the program.

Core Courses
Students must have completed or be enrolled in all core courses by the end of the fall semester in which they apply for acceptance into upper-division courses. They must complete all core courses before entering upper-division courses. They will also need the prerequisites to the individual upper-division courses.

Forestry
Two courses in English composition (English 101 and 102 or equivalent); calculus (Mathematics 125 or equivalent); general chemistry (Chemistry 100 or equivalent); two courses in general botany (Biology 111 and 112 or equivalent); general economics (Economics 201 or equivalent); public speaking (Communication Studies 210 or 240 or equivalent) and statistics (Statistics 201 or equivalent); microcomputer applications (Agriculture and Natural Resources 290 or equivalent); general ecology (Biology 250 or equivalent).

Wildlife and Fisheries Science
Two courses in English composition (English 101 and 102 or equivalent); calculus (Mathematics 125 or equivalent); two courses in general chemistry (Chemistry 120/130 or 100/110 or equivalent); two courses in general biology (Biology 130/140 or 101/102 or equivalent); general economics (Economics 201 or equivalent); public speaking (Communication Studies 210 or 240 or equivalent); statistics (Statistics 201 or equivalent); microcomputer applications (Agriculture and Natural Resources 290 or equivalent); general ecology (Biology 250 or equivalent).

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

Forest Resources Management Concentration
The forest resources management concentration provides an opportunity to obtain an education related to the management of the broad spectrum of wildland resources. In addition to the core of required courses, there are about 18 elective credit hours for broad studies or specialized training in one or more areas of forestry. These areas and examples of related fields of study are forest biology including plant physiology and morphology, ecology, genetics, tree nutrition, forest soils; forest business management including economics, accounting, finance, marketing, management science; forest economics including economics, business administration, social science; forest inventory including mathematics, statistics, computer science; wildland recreation including natural and social sciences; and wildlife management including ecology and botany.

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

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

Requirements for the Bachelor of Science in Forestry
• Forestry Major • Forest Resources Management Concentration

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 101*-102*</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Forestry 100</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Economics 201*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Statistics 201*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Agriculture and Natural Resources 290 or Biosystems Engineering Technology 326 or Geography 411</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Second Year</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Economics 201*</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Agriculture and Natural Resources 290 or Biosystems Engineering Technology 326 or Geography 411</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Forestry, Wildlife and Fisheries 212</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Forestry, Wildlife and Fisheries 214, 215</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Communications Studies 210* or 240*</td>
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<tr>
<td>Environmental and Soil Sciences 210</td>
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<td>Electives</td>
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<tr>
<td>Third Year</td>
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<tr>
<td>Forestry, Wildlife and Fisheries 312*, 313, 317</td>
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<td></td>
</tr>
<tr>
<td>Arts and Humanities Elective*</td>
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</tr>
</tbody>
</table>
**WILDLAND RECREATION CONCENTRATION**

The wildland recreation concentration is an interdisciplinary program that prepares students to work in natural resource based recreation settings on private and public lands, including local, state, and national parks, and other state and federal agencies and private or non-profit organizations providing outdoor recreational opportunities.

Students prepare for professional positions in the planning, development, interpretation, and management of private and public lands for recreational purposes. Students also learn the basic philosophy and principles associated with the use of leisure time and the relationship of natural resources to the constructive use of leisure time.

Elective credits may be used to obtain specializations in complementary areas such as education, cultural and natural history interpretation, forestry, wildlife, fisheries, communication and public relations, agricultural extension education, ornamental horticulture and landscape design, business and public administration; and the natural sciences, including ecology, and geology, as well as recreation and leisure studies.

Ten weeks of professional internship experience (6 credits) are required during the final 45 hours of credit in the program. The internship is a highly structured field experience guided by specific learning objectives pre-approved by the instructor and the field supervisor. The student receives one credit per two weeks of full-time field experience. Preparations for the internship should be made well in advance of actual placement. Summer employment or volunteer work in a related field prior to the internship is highly encouraged.

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### Requirements for the Bachelor of Science in Forestry: Wildland Recreation Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Forestry 100</td>
<td>3</td>
</tr>
<tr>
<td>English 101*-102*</td>
<td>6</td>
</tr>
<tr>
<td>Mathematics 125*</td>
<td>3</td>
</tr>
<tr>
<td>Biology 111*-112*</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry 100*</td>
<td>4</td>
</tr>
<tr>
<td>Psychology 110*, Sociology 120*, Political Science 102*, Sociology 110*, or Anthropology 130*</td>
<td>4</td>
</tr>
<tr>
<td>1Cultures and Civilizations* or Arts and Humanities* Elective</td>
<td>3</td>
</tr>
<tr>
<td>2Electives</td>
<td>3</td>
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</table>

**Second Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forestry 214, 215</td>
<td>6</td>
</tr>
<tr>
<td>Economics 201*</td>
<td>4</td>
</tr>
<tr>
<td>Statistics 201*</td>
<td>3</td>
</tr>
<tr>
<td>Communication Studies 210* or 240*</td>
<td>3</td>
</tr>
<tr>
<td>Environmental and Soil Sciences 210</td>
<td>4</td>
</tr>
<tr>
<td>Select two from: Art Media Arts 231, 236; Communication Studies 220, 270, 310, 320, 330, 420; English 295*; Journalism and Electronic Media 201*, 290, 412, 450*, 451*, 488</td>
<td>6</td>
</tr>
<tr>
<td>1Cultures and Civilizations* or Arts and Humanities* Electives</td>
<td>6</td>
</tr>
</tbody>
</table>

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**Fourth Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forestry, Wildlife and Fisheries 410, 412, 416</td>
<td>9</td>
</tr>
<tr>
<td>Forestry 331, 332, 420, 422</td>
<td>8</td>
</tr>
<tr>
<td>Ethics Elective</td>
<td>3</td>
</tr>
<tr>
<td>3Cultures and Civilizations Elective*</td>
<td>3</td>
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<tr>
<td>3Arts and Humanities Elective*</td>
<td>3</td>
</tr>
<tr>
<td>2Electives</td>
<td>2</td>
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* Meets University General Education Requirement.
1 Choose from Anthropology 130*, Political Science 102*, Psychology 110* or 117*, Sociology 110*, 117*, or 120*.
2 Electives are chosen in conference with advisor.
3 General Education Electives. Choose two courses from the Cultures and Civilizations list and two from the Arts and Humanities list for a total of 12 credit hours. Forestry, Wildlife and Fisheries 312 meets the General Education Requirement for Communicating through Writing.

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**Minor in Forestry**

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Forestry, Wildlife and Fisheries 211 or 250</td>
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<tr>
<td>Forestry, Wildlife and Fisheries 212, 312, 313, 412, 416</td>
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</tr>
</tbody>
</table>

Total 17

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**WILDLIFE AND FISHERIES SCIENCE MAJOR**

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

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**Requirements for the Bachelor of Science in Wildlife and Fisheries Science**

**Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forestry, Wildlife and Fisheries 211 or 250</td>
<td>3</td>
</tr>
<tr>
<td>English 101*-102*</td>
<td>6</td>
</tr>
<tr>
<td>Biology 130*-140* or 101*-102*</td>
<td>8</td>
</tr>
<tr>
<td>Chemistry 120*-130* or 100*-110*</td>
<td>8</td>
</tr>
<tr>
<td>1Cultures and Civilizations* or Arts and Humanities* Elective</td>
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</tr>
</tbody>
</table>

**Second Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistics 201*</td>
<td>3</td>
</tr>
<tr>
<td>Agriculture and Natural Resources 290</td>
<td>3</td>
</tr>
<tr>
<td>Biosystems Engineering Technology 326 or Geography 411</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics 125*</td>
<td>3</td>
</tr>
<tr>
<td>Communication Studies 210* or 240*</td>
<td>3</td>
</tr>
<tr>
<td>Animal Science 220 or Ecology and Evolutionary Biology 350</td>
<td>3-4</td>
</tr>
<tr>
<td>Environmental and Soil Sciences 210</td>
<td>4</td>
</tr>
<tr>
<td>Economics 201*</td>
<td>3</td>
</tr>
<tr>
<td>Biology 280</td>
<td>4</td>
</tr>
<tr>
<td>1Cultures and Civilizations* or Arts and Humanities* Elective</td>
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**Third Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forestry, Wildlife and Fisheries 312*, 313, 317</td>
<td>8</td>
</tr>
<tr>
<td>Forestry 321, 423</td>
<td>6</td>
</tr>
<tr>
<td>Forestry 314; Political Science 440, 441; Plant Sciences 427; or Management 440</td>
<td>2-3</td>
</tr>
<tr>
<td>Recreation 310, 410, 415, 430, 470</td>
<td>3</td>
</tr>
<tr>
<td>Biosystems Engineering Technology 212, 326; Geography 310, 410, 411, 413; Political Science 403; Agriculture and Natural Resources 290</td>
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</tr>
<tr>
<td>Select one course from Sociology 345, 360, 370, 464, 465; Philosophy 245*; Geography 320, 323, 345</td>
<td>3</td>
</tr>
<tr>
<td>1Cultures and Civilizations* or Arts and Humanities* Elective</td>
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</tbody>
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* Meets University General Education Requirement.
1 General Education Electives. Choose two courses from the Cultures and Civilizations list and two from the Arts and Humanities list for a total of 12 credit hours. Forestry, Wildlife and Fisheries 312 meets the General Education Requirement for Communicating through Writing.
2 Electives are chosen in conference with advisor.
Fourth Year
Forestry, Wildlife and Fisheries 410, 416 .......................... 6
Wildlife and Fisheries Science 443, 444, 445 ......................... 9
Ecology and Evolutionary Biology 474 ............................. 4
Forestry, Wildlife and Fisheries 312 or Forestry 321*, 422 ........ 3
1Science Electives ......................................................... 6
2Social Science Elective* ............................................. 3

Total 125-127

* Meets University General Education Requirement.
1 General Education Electives. Choose two courses from the Cultures and Civilizations list and two from the Arts and Humanities list for a total of 12 credit hours. Forestry, Wildlife and Fisheries 312 meets the General Education Requirement for Communicating through Writing.
2 300-level and above from Animal Science; Biochemistry and Cellular and Molecular Biology; Biosystems Engineering Technology; Ecology and Evolutionary Biology; Entomology and Plant Pathology; Environmental and Soil Sciences; Forestry; Forestry, Wildlife and Fisheries; Plant Sciences; Wildlife and Fisheries Science; and Geography 410, 411, 412, 413, 436.

Requirements for the Bachelor of Science in Wildlife and Fisheries Science • Wildlife and Fisheries Science Major

• Wildlife Health Concentration

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours Credit</th>
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</thead>
<tbody>
<tr>
<td>Wildlife and Fisheries Science 101</td>
<td>1</td>
</tr>
<tr>
<td>Forestry, Wildlife and Fisheries 211 or 250*</td>
<td>6</td>
</tr>
<tr>
<td>English 101*, 102*</td>
<td>6</td>
</tr>
<tr>
<td>Biology 130* - 140*</td>
<td>8</td>
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<tr>
<td>Chemistry 120* - 130*</td>
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<td>Statistics 201*</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics 125*</td>
<td>3</td>
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<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Wildlife and Fisheries Science 201</td>
<td>3</td>
</tr>
<tr>
<td>Biology 240, 250</td>
<td>8</td>
</tr>
<tr>
<td>Chemistry 350, 360, 369</td>
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<tr>
<td>Physics 221* - 222*</td>
<td>8</td>
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<tr>
<td>Microbiology 310, 319</td>
<td>5</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Third Year</th>
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<tbody>
<tr>
<td>Forestry, Wildlife and Fisheries 317</td>
<td>3</td>
</tr>
<tr>
<td>Communications Studies 210* or 240*</td>
<td>3</td>
</tr>
<tr>
<td>Wildlife and Fisheries Science 301</td>
<td>3</td>
</tr>
<tr>
<td>Biochemistry and Cellular and Molecular Biology 440</td>
<td>3</td>
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<tr>
<td>Ecology and Evolutionary Biology 350</td>
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</tr>
<tr>
<td>Animal Science 380</td>
<td>3</td>
</tr>
<tr>
<td>Microbiology 420 or 430</td>
<td>3</td>
</tr>
<tr>
<td>Economics 262*</td>
<td>4</td>
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</table>

<table>
<thead>
<tr>
<th>Fourth Year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Forestry, Wildlife and Fisheries 410</td>
<td>3</td>
</tr>
<tr>
<td>Wildlife and Fisheries Science 443, 444, 445</td>
<td>9</td>
</tr>
<tr>
<td>Microbiology 470 or 4Wildlife and Fisheries 496</td>
<td>3</td>
</tr>
<tr>
<td>Biochemistry and Cellular and Molecular Biology 410</td>
<td>4</td>
</tr>
<tr>
<td>1Social Science Elective*</td>
<td>3</td>
</tr>
<tr>
<td>1Courses and Civilizations* or Arts and Humanities Elective*</td>
<td>6</td>
</tr>
</tbody>
</table>

Total 122

* Meets University General Education Requirement.
1 General Education Electives. Choose two courses from the Cultures and Civilizations list, two courses from the Arts and Humanities list, one from the Social Sciences list for a total of 15 credit hours. One of the Cultures and Civilizations or Arts and Humanities or Social Sciences courses must be writing-intensive (WC).
2 Must be a department-approved internship.

Minor in Wildlife and Fisheries Science

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forestry, Wildlife and Fisheries 211 or 250</td>
</tr>
<tr>
<td>Forestry, Wildlife and Fisheries 317</td>
</tr>
<tr>
<td>Select three from Forestry, Wildlife and Fisheries 410, 416; Wildlife and Fisheries Science 443, 444, 445</td>
</tr>
</tbody>
</table>

Total 15

Academic programs in the Department of Plant Sciences span the art, science and technology of plant use in society. Students receive preparation for careers in horticulture and agronomy within four concentrations – landscape design and construction, plant science, biotechnology and horticulture; public horticulture; and turfgrass science and management. With increasing emphasis placed on plants in urban areas, extensive training in landscape horticulture (planning, implementation and management for landscapes, turf and gardens) is offered. Comprehensive programs in plant biotechnology and plant production are also offered.

Upon entering the department, each student is assigned a faculty advisor for guidance in selection of career specialties and elective courses. The curriculum builds upon the University General Education Requirement with critical courses in botany, soils, and business and adds a set of required departmental courses specific to each concentration. Students are able to customize their program by selecting electives. Students in all concentrations are trained to work knowledgeably in general plant culture.
Students are encouraged to earn a minor in a supportive field to further enhance their academic training and professional competitiveness. While firmly grounding students in the knowledge and skills of the plant sciences and arts, our curricula emphasize critical thinking and creative activity. Our students also gain the theoretical education necessary for continuing on for advanced degrees in plant related fields.

Students should declare a concentration early in their undergraduate program and strictly follow the curriculum described for the concentration. Students who transfer into plant sciences from other colleges or programs must meet the same requirements as those entering the department as freshmen.

Internship or undergraduate research participation is required for each concentration. Full-time summer internships are available at selected local, regional, and national companies or institutions. Part-time summer or semester internships and research experiences are available from the Department of Plant Sciences, other university departments and laboratories, and local commercial firms.

Our graduates find employment in a wide variety of professions. In working for others or within their own businesses, graduates of the landscape concentration design residential landscapes, select proper woody and herbaceous plant materials for specific sites, restore native landscapes, specify specialty components dealing with landscape construction (irrigation, lighting, water features), prepare materials lists and cost estimates for landscape installations, and manage landscape crews. Turf majors have career opportunities in the industries involved with lawn management, athletic fields, golf courses, sales, and park and grounds maintenance. The public horticulture concentration prepares students for careers in botanic gardens, zoos and national parks; professional writing, television and radio; urban forestry; teaching; and municipal and university horticulture. Graduates in plant science, biotechnology and horticulture find employment in education, consulting, sales, agricultural extension, and research and development.

Core Courses
The core courses for the plant sciences concentrations which are required for entry into upper-division courses are as follows.

LANDSCAPE DESIGN CONCENTRATION
Two courses in English composition (English 101 and 102 or equivalent); Mathematics 113 or 123 or 151 or equivalent; Computer Sciences 100 or 102 or equivalent; general chemistry (Chemistry 100 or 120 or equivalent); two courses in general botany (Biology 111 and 112 or equivalent); soil science (Environmental and Soil Sciences 210 or equivalent); Basic Landscape Plants (Plant Sciences 220 or equivalent); Fundamentals of Landscape Design (Plant Sciences 280 or equivalent).

PLANT SCIENCE, BIOTECHNOLOGY AND HORTICULTURE CONCENTRATION
Two courses in English composition (English 101 and 102 or equivalent); two courses in mathematics (Mathematics 123 and 125 or Mathematics 151 and 152 or equivalent); two courses in general chemistry (Chemistry 100 and 120 or equivalent); two courses in general botany (Biology 111 and 112 or equivalent); soil science (Environmental and Soil Sciences 210 or equivalent); Computer Applications to Problem Solving (Agriculture and Natural Resources 290 or equivalent).

PUBLIC HORTICULTURE CONCENTRATION
Two courses in English composition (English 101 and 102 or equivalent); Mathematics 113 or 123 or 151 or equivalent; Computer Sciences 100 or 102 or equivalent; general chemistry (Chemistry 100 or 120 or equivalent); two courses in general botany (Biology 111 and 112 or equivalent); soil science (Environmental and Soil Sciences 210 or equivalent); Computer Applications to Problem Solving (Agriculture and Natural Resources 290 or equivalent).

TURFGRASS SCIENCE AND MANAGEMENT CONCENTRATION
Two courses in English composition (English 101 and 102 or equivalent); two courses in mathematics (Mathematics 123 and 125 or equivalent); two courses in general chemistry (Chemistry 100 and 110 or 120 and 130 or equivalent); two courses in general botany (Biology 111 and 112 or equivalent); soil science (Environmental and Soil Sciences 210 or equivalent); Turfgrass Management (Plant Sciences 240 or equivalent); Computer Applications to Problem Solving (Agriculture and Natural Resources 290 or equivalent).

Technical Electives

LANDSCAPE DESIGN AND CONSTRUCTION CONCENTRATION
Architectural Technology 111, 180, 211, 232, 421; Art 101, 103, 191, 295; Art Drawing 211, 212; Art Media Arts 231, 331; Art Painting 213, 214, 215, 216; Biochemistry and Cellular and Molecular Biology 306; Biology 250; Biosystems Engineering Technology 202, 212; Ecology and Evolutionary Biology 304, 330, 433; Communication Studies 230, 310; English 360*; Entomology and Plant Pathology 201, 306, 313, 321, 410; Environmental and Soil Sciences 324, 334; Forestry 321; Forestry Wildlife and Fisheries 211, 250, 311; Geography 365, 366; Geology 201, 202, 203; Philosophy 243*, 244, 245*; Political Science 402, 403, 446; Spanish 211, 212.

PLANT SCIENCES, BIOTECHNOLOGY AND HORTICULTURE CONCENTRATION
Agricultural Economics 330, 342, 350, 412; Accounting 200; Biochemistry and Cellular and Molecular Biology 310, 330, 401, 402, 404; Biology 240; Biosystems Engineering Technology 202, 236; Business Administration 201; Chemistry 350; Ecology and Evolutionary Biology 304, 410, 414, 433; English 360*; Entomology and Plant Pathology 451; Environmental and Soil Sciences 355, 442; Finance 301; Management 300; Marketing 300; Microbiology 210.

PUBLIC HORTICULTURE CONCENTRATION
Accounting 415; Art 481; Agriculture and Extension Education 346; Communication Studies 440; Ecology and Evolutionary Biology 309, 330, 433; Educational Administration and Policy Studies 200; Educational Psychology 210; English 360*; Human Resource Development 562; Philosophy 245*; Public Relations 270, 470; Recreation and Leisure Studies 201, 430.

TURFGRASS SCIENCE AND MANAGEMENT CONCENTRATION
Agricultural Economics 212; Biosystems Engineering Technology 202, 212, 452, 462; Entomology and Plant Pathology 321, 410; Environmental and Soil Sciences 324.

Courses marked with an * meet the University General Education Requirement.
Second Year
1Arts and Humanities Elective* ................................................................. 3
Communication Studies 210* or 240* ......................................................... 3
Economics 201* ......................................................................................... 4
Environmental and Soil Sciences 210 ............................................................ 4
Plant Sciences 210, 220, 280 ................................................................. 8
Technical Electives ................................................................................... 8
Unrestricted Elective ................................................................................... 3

Third Year
1Cultures and Civilizations Elective* ....................................................... 3
Plant Sciences 350, 380 ............................................................................ 6
Select from Plant Sciences 226, 230, 240, 330, 348, 360, 370 ...... 5-6
Plant Sciences 290 or 291 ......................................................................... 3
tical Electives ............................................................................................... 6-7

Third Year – Summer
Plant Sciences 492 .................................................................................... 3

Fourth Year
Agricultural Economics 310 ................................................................. 1
1Arts and Humanities Elective* ................................................................. 3
1Cultures and Civilizations Elective* ....................................................... 3
Plant Sciences 421, 460, 480, 485 ............................................................. 11
Select from Plant Sciences 348, 410, 427, 429, 430, 434, 441, 446, 459, 493 ................................................................. 5-6
Technical Electives .................................................................................... 7-8

Total 124

* Meets University General Education Requirement.
1 Choose from the University General Education lists. Selection should be made in conference with academic advisor.

Students must meet the University General Education Requirement for Communicating through Writing by selecting a course with a (WC) designation. This course may be in the major or from another discipline.

PLANT SCIENCE, BIOTECHNOLOGY AND HORTICULTURE CONCENTRATION

The plant science, biotechnology and horticulture concentration is designed for students desiring to pursue professions in biotechnology or commercial production of agronomic and horticultural crops. This concentration also prepares students for graduate studies in plant sciences. Careful selection of departmental courses and other electives in consultation with the assigned academic advisor will prepare graduates for the career of their choice. The concentration consists of two tracks of study – emphasis in production horticulture and emphasis in science and biotechnology.

Requirements for the Bachelor of Science in Plant Sciences • Plant Sciences Major • Plant Science, Biotechnology and Horticulture Concentration

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology 111*, 112*</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Chemistry 100* and 110*, or 120* and 130*</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>English 101*, 102*</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Mathematics 151*, 152*</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Plant Sciences 120</td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

| Second Year                |       |        |
| Agriculture and Natural Resources 290 |   | 3      |
| Agricultural Economics 212  |       | 3      |
| 1Arts and Humanities Elective* |   | 3      |
| Communication Studies 210* or 240* |   | 3      |
| 1Cultures and Civilizations Elective* |   | 3      |
| Environmental and Soil Sciences 210 |   | 4      |
| Economics 201*             |       | 4      |
| Plant Sciences 210         |       | 2      |
| 1Social Sciences Elective*  |       | 3      |
| Technical Electives        |       | 4      |

| Third Year                 |       |        |
| Agricultural Economics 310 |       | 1      |
| Biochemistry and Cellular and Molecular Biology 321 or Forestry 414 | | 4 |
| 1Cultures and Civilizations Elective* | | 3 |

English 360* for Production Horticulture Track;
or Chemistry 350 for Science and Biotechnology Track ........ 3
Environmental and Soil Sciences 334 .............................................. 3
Plant Sciences 240, 241, 330, 335, 370, 410, 430, 434, 435 ...... 8
Plant Sciences 457-458 or 457-459; Entomology and Plant Pathology 313 or 321 or 410 .......... 6
Technical Electives ............................................................................ 3

Fourth Year
1Arts and Humanities Elective* ............................................................. 3
Plant Sciences 240, 241, 335, 370, 410, 430, 434, 435, or 435 for Production Horticulture Track; or Plant Sciences 353, 454 for Science and Biotechnology Track ........ 6
Plant Sciences 470 ............................................................................. 3
Plant Sciences 492 or 497 ................................................................. 3
Plant Sciences 331 and Technical Electives for Production Horticulture Track; or Plant Sciences 461 for Science and Biotechnology Track ........ 3
Technical Electives ............................................................................ 10
Unrestricted Electives ......................................................................... 3

Total 124

* Meets University General Education Requirement.
1 Choose from the University General Education lists. Selection should be made in conference with academic advisor.

Students must meet the University General Education Requirement for Communicating through Writing by selecting a course with a (WC) designation. This course may be in the major or from another discipline.

PUBLIC HORTICULTURE CONCENTRATION

The public horticulture concentration is intended for students interested in professional careers that promote horticulture and emphasize people, their education and their enjoyment of plants. Such careers include director of a botanical garden or park; city or urban horticulturist; extension agent, teacher, educational director, or program coordinator; professional garden writer/editor or publication manager; horticulture therapist; public garden curator; and plant collections manager. Technical electives allow students to concentrate in specialties of their interest while encouraging the development of strong communication skills. Students are encouraged to earn a minor degree in a supportive field such as education, communications or journalism, or earn a Non-Profit Management Certificate.

Requirements for the Bachelor of Science in Plant Sciences • Plant Sciences Major • Public Horticulture Concentration

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Arts and Humanities Elective*</td>
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</tr>
<tr>
<td>Biology 111*, 112*</td>
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<td>3</td>
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<tr>
<td>Chemistry 100* or 120*</td>
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<tr>
<td>Computer Science 100* or 102*</td>
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<tr>
<td>English 101*, 102*</td>
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<td>Environmental and Soil Sciences 210</td>
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<td>4</td>
</tr>
<tr>
<td>Mathematics 113*, 123*, or 151*</td>
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<td>3</td>
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</tbody>
</table>

| Second Year                |       |        |
| 1Arts and Humanities Elective* |   | 3      |
| Communication Studies 240*  |       | 3      |
| 1Cultures and Civilizations Elective* | | 3      |
| Plant Sciences 210         |       | 2      |
| 1Social Sciences Elective*  |       | 3      |
| Technical Electives        |       | 3      |

| Third Year                 |       |        |
| Economics 201*             |       | 4      |
| Plant Sciences 230, 240, 328, 330, 348, 370, 410, 434, 436, 438 | | 21 |
| Technical Electives        |       | 6      |

| Third Year – Summer       |       |        |
| Plant Sciences 492         |       | 3      |
The turfgrass science and management concentration is designed for the student desiring to pursue professions that include growing and managing turfgrasses used for golf courses, parks, athletic fields, sports complexes, and residential and commercial lawns. This concentration also prepares students for graduate studies in turfgrass science. Students are encouraged to earn a minor degree in a supportive field such as agricultural economics or environmental and soil sciences. Careful selection of departmental courses and other electives in consultation with the assigned academic advisor will prepare graduates for the career of their choice.

**Requirements for the Bachelor of Science in Plant Sciences • Plant Sciences Major • Turfgrass Science and Management Concentration**

<table>
<thead>
<tr>
<th>Year</th>
<th>Courses</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
<td><strong>Arts and Humanities Elective</strong>*</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em><em>Chemistry 100</em> and 110</em>, or 120* and 130***</td>
<td><strong>3</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Cultures and Civilizations Elective</strong>*</td>
<td><strong>3</strong></td>
</tr>
<tr>
<td></td>
<td><em><em>English 101</em>, 102</em>*</td>
<td><strong>3</strong></td>
</tr>
<tr>
<td></td>
<td><em><em>Mathematics 123</em> and 125</em>, or 151* and 152**</td>
<td><strong>6</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Social Sciences Elective</strong>*</td>
<td><strong>3</strong></td>
</tr>
<tr>
<td><strong>Second Year</strong></td>
<td><strong>Agriculture and Natural Resources 290</strong></td>
<td><strong>3</strong></td>
</tr>
<tr>
<td></td>
<td><em><em>Biology 111</em>, 112</em>*</td>
<td><strong>3</strong></td>
</tr>
<tr>
<td></td>
<td><em><em>Communication Studies 210</em> or 240</em>*</td>
<td><strong>3</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Economics 201</strong></td>
<td><strong>4</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Environmental and Soil Sciences 210</strong></td>
<td><strong>4</strong></td>
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<tr>
<td></td>
<td><strong>Plant Sciences 240, 241</strong></td>
<td><strong>3</strong></td>
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<tr>
<td></td>
<td><strong>Plant Sciences 210, 220, 280 or 290</strong></td>
<td><strong>2-3</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Unrestricted Electives</strong></td>
<td><strong>2-3</strong></td>
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<tr>
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<td><strong>Unrestricted Electives</strong></td>
<td><strong>3-4</strong></td>
</tr>
<tr>
<td><strong>Third Year</strong></td>
<td><strong>Arts and Humanities Elective</strong>*</td>
<td><strong>3</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Plant Sciences 210, 220, 280 or 290</strong></td>
<td><strong>2-3</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Plant Sciences 330, 331, 341, 343, 348, 442, and 457-458</strong></td>
<td><strong>13</strong></td>
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<tr>
<td></td>
<td><strong>Technical Electives</strong></td>
<td><strong>3</strong></td>
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<tr>
<td></td>
<td><strong>Unrestricted Electives</strong></td>
<td><strong>9-10</strong></td>
</tr>
<tr>
<td><strong>Third Year – Summer</strong></td>
<td><strong>Plant Sciences 492</strong></td>
<td><strong>9-10</strong></td>
</tr>
<tr>
<td><strong>Fourth Year</strong></td>
<td><strong>Arts and Humanities Elective</strong>*</td>
<td><strong>3</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Biology 250 or Biochemistry and Cellular and Molecular Biology 321</strong></td>
<td><strong>3</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Entomology and Plant Pathology 313</strong></td>
<td><strong>3</strong></td>
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<tr>
<td></td>
<td><strong>Environmental and Soil Sciences 334</strong></td>
<td><strong>3</strong></td>
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<tr>
<td></td>
<td><em><em>Select from Plant Sciences 353, 360, 410, 421, 427, 429, 430, 434, 435, 436, 437, 446, 448</em>, 451, 461 or 494</em>*</td>
<td><strong>5</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Plant Sciences 441, 470</strong></td>
<td><strong>5</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Technical Electives</strong></td>
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</tr>
<tr>
<td></td>
<td><strong>Total 124</strong></td>
<td></td>
</tr>
</tbody>
</table>

* Meets University General Education Requirement.

1 Choose from the University General Education lists. Selection should be made in conference with academic advisor.

Students must meet the University General Education Requirement for Communicating through Writing by selecting a course with a (WC) designation. This course may be in the major or from another discipline. Plant Sciences 448 satisfies the Communicating through Writing requirement.

**Minor in Plant Sciences**

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Meets University General Education Requirement.</td>
<td></td>
</tr>
<tr>
<td>1 Choose from the University General Education lists. Selection should be made in conference with academic advisor.</td>
<td></td>
</tr>
<tr>
<td>Students must meet the University General Education Requirement for Communicating through Writing by selecting a course with a (WC) designation. This course may be in the major or from another discipline. Plant Sciences 448 satisfies the Communicating through Writing requirement.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Courses</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor in Plant Sciences</td>
<td>18</td>
</tr>
</tbody>
</table>

**Total 18**
To See and Understand.
To Envision and Create.

The mission of the College of Architecture and Design is the education of future design professionals. A professional education is characterized by integrity and responsibility, and informed by knowledge and orientation.

Our college is brought together to promote and sustain the built and natural environments through the development of design skills and the pursuit of knowledge.

We are committed to the development of individuals with creative imagination, intellectual curiosity, and technical knowledge.

We educate students in the design disciplines who can form independent judgment grounded in the broader contexts of intellectual traditions.

The students and staff of the College of Architecture and Design strive to make the college a community of inquiry, energy, and excellence, integrating research, creative activity, public service, teaching, and learning.

Professional Accreditation

The College of Architecture and Design includes three basic, professionally accredited programs of study at the undergraduate and graduate level.

Bachelor of Architecture
A professionally accredited five-year undergraduate first professional degree program of study.

Bachelor of Science in Interior Design
A professionally accredited four-year undergraduate program of study.

Master of Architecture
A professionally accredited first professional degree for students from any academic background. This three-year course of study is described in the Graduate Catalog.

Accreditation

Architecture
In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes two types of degrees – the Bachelor of Architecture and the Master of Architecture. A program may be granted a six-year, three-year, or two-year term of accreditation, depending on its degree of conformance with established educational standards.

Master’s degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree, which, when earned sequentially, comprise an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree. The University of Tennessee, Knoxville, offers both the five-year Bachelor of Architecture and a three-year Master of Architecture for students with an unrelated bachelor’s degree.

The four year pre-professional degree, where offered, or other architectural technology degrees are not accredited by NAAB. The pre-professional degree is useful for those wishing a foundation in the field of architecture, as preparation for either continued education in a professional degree program or for employment options in architecturally related areas.

Interior Design
Most states require that an individual intending to become a licensed interior designer hold a professionally accredited degree. The University of Tennessee, Knoxville, offers a four-year Bachelor of Science in Interior Design. It is professionally accredited by the Foundation for Interior Design Education and Research (FIDER), the sole agency authorized to accredit U.S. professional degree programs in interior design.

Admission

Due to the limited size of the design studios and college resources, admission to the College of Architecture and Design is highly selective, based on test scores, high school record, student application, and portfolio. In making its decisions, the college also requires a portfolio from applicants (see information below). Applicants will be informed of their status by April 15 of each year.

Required Portfolio

All applicants must submit a portfolio of personally produced graphic or visual work. The purpose of the portfolio is to demonstrate visual talent and abilities.

Aim for quality rather than quantity in selecting work. An ideal number would be eight to ten examples of personal work. All work shall be neatly assembled in an 8½ x 11 portfolio or organized folder/notebook. Submittals not adhering to this size require-
ment will not be reviewed. The portfolio must include at least three items:

- A freehand drawing of a stair.
- A freehand drawing of a collection of leaves.
- A freehand drawing of a bicycle.

The following guidelines have been established to assist applicants in selecting additional samples of personal work for the portfolio:

- Include other examples of drawings, artwork, photography, or anything else which may demonstrate visual abilities. Graphical, architectural or industrial design work may also be included.
- Include work for course assignments (if any), as well as work completed independently.
- Avoid extensive submissions of mechanically-drafted drawings or computer drawings, unless these are illustrative of a design project.
- Submission of the original item is not necessary. Inexpensively reproduced drawings, photographs, reductions, and photocopies are acceptable. Digital design work must be submitted as a hard copy. (No slides or disks.)
- Label all work with name, date when work was executed, and media.
- The cover or cover page of the portfolio should include the student name, address, phone number, social security number, and the program to which the application is made (Architecture or Interior Design).

The 8½ x 11 portfolio should be sent, with the application, to the Office of Admissions. It will be reviewed by members of the College Admissions Committee. In addition, include a self-addressed stamped mailer for the return of the portfolio. Otherwise, portfolios will not be held nor returned.

Advice to High School Students

High school students are encouraged to take physics, art, and calculus. Students enrolled in Advanced Placement courses should take the national AP exam. Extensive drafting, mechanical drawing or architecture courses based on drafting are not recommended.

Transfer Students

It should be noted that due to the strong sequential character of the curriculum, entry in any semester other than fall may be difficult. A course of summer study is usually offered which would allow transfer students to proceed to the second year course of study for the fall. Transfer students are required to submit a portfolio and to have at least a 2.3 grade point average to be considered. The average grade point average has been 3.5 for students accepted in recent years. Transfer students should apply by February 1, and should discuss their options with the Director of Student Services.

Academic Policies

Advising

Students must plan their schedule in consultation with the college’s Advising Center. In addition, entering architecture and interior design students will be assigned to an upper-class student who will serve as a peer advisor. The Director of Student Services is available to answer additional questions and to oversee questions related to admissions, advising, and career placement.

All academic policies of the College of Architecture and Design are summarized in the Student Handbook, published each year by the college and on the Web site.

Course Load

The average course load in any semester is 17 credit hours. The minimum which may be taken by full-time students is 12 hours. The maximum which may be taken without approval of the dean is 19 hours.

Satisfactory/No Credit Courses

Courses that are a part of the specific requirements of the college cannot be taken as Satisfactory/No Credit.

Credit hours over and above the specific graduation requirements may be taken Satisfactory/No Credit. A student who desires to take a course Satisfactory/No Credit should indicate this at the start of registration. Courses evaluated as Satisfactory will count as hours toward graduation but will not be calculated in the student’s GPA.

SCHOOL OF ARCHITECTURE

Professors

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Davis, M.K.</td>
<td>MArch</td>
<td>Harvard</td>
</tr>
<tr>
<td>Keiso, R.M.</td>
<td>PhD</td>
<td>Loughborough</td>
</tr>
<tr>
<td>Kinzy, S.A.</td>
<td>PhD</td>
<td>State University of New York (Buffalo)</td>
</tr>
<tr>
<td>McRae, J.M.</td>
<td>MArch</td>
<td>Rice</td>
</tr>
<tr>
<td>Rabun, J.S.</td>
<td>PhD</td>
<td>York</td>
</tr>
<tr>
<td>Robinson, M.A.</td>
<td>MArch</td>
<td>Pennsylvania</td>
</tr>
<tr>
<td>Shell, W.S.</td>
<td>MSArch</td>
<td>Columbia</td>
</tr>
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</table>

Associate Professors

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Davis, T.K.</td>
<td>MArch</td>
<td>Cornell</td>
</tr>
<tr>
<td>DeKay, M.</td>
<td>MArch</td>
<td>Oregon</td>
</tr>
<tr>
<td>Debelius, C.A.</td>
<td>MArch</td>
<td>Harvard</td>
</tr>
<tr>
<td>Dodds, G.</td>
<td>PhD</td>
<td>Pennsylvania</td>
</tr>
<tr>
<td>Fox, D.</td>
<td>MArch</td>
<td>Cranbrook Academy of Art</td>
</tr>
<tr>
<td>Klinkhammer, B.</td>
<td>Dipl-Ing</td>
<td>RWTH (Aachen)</td>
</tr>
<tr>
<td>Martella, W.E.</td>
<td>BArch</td>
<td>California (Berkeley)</td>
</tr>
<tr>
<td>Moir-McClean, T.</td>
<td>MArch</td>
<td>Michigan</td>
</tr>
<tr>
<td>Schimmenti, M.</td>
<td>MArch</td>
<td>Florida</td>
</tr>
<tr>
<td>Stach, E.</td>
<td>Dipl-Ing</td>
<td>RWTH (Aachen)</td>
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</table>

Assistant Professor

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambroziazi, B.</td>
<td>MArch</td>
<td>Princeton</td>
</tr>
</tbody>
</table>

Architecture involves the study and transformation of the built environment, from the scale of furniture to the scale of the city. The goal of an architectural education is to develop a synthetic thought process of critical thinking and creative problem solving. Creative thinkers must address all aspects of the built environment, in its cultural, social, and ethical context.

As a professional discipline, architecture spans both the arts and the sciences. Students must have an understanding of the arts and humanities, as well as a technical understanding of structures and construction. Skills in communication, both visual and verbal, are essential. While knowledge and skills must be developed, the school strongly emphasizes a process of critical thinking and creative activity.

Progression

Students must maintain an overall 2.3 grade point average by the end of 32 hours in order to maintain “full status” in the program. Delinquent students will be put on “temporary status” for one semester. These students will have one semester to raise the overall GPA to a 2.3. If the GPA is not brought up to 2.3, the student will be dropped from the architecture program.

Students may advance to second year design (271) with satisfactory completion of the first year program (including mathematics) with a grade point average of 2.3. Students may advance to third year design (371) with the completion of all first and second year courses. For 371 and all subsequent design courses, students must maintain a design grade point average of 2.3. Students must repeat the previous level design course(s) until the average is raised to 2.3. Electives on the 300- and 400-level are open to all students who have the necessary prerequisites at any time.

Exceptions to academic policies may be made through petition, reviewed by the school’s Academic Standards Committee.

Special Programs in Architecture

The School of Architecture is committed to providing a variety of meaningful learning opportunities beyond the classroom itself. Lectures, panel discussions, films, symposia, and exhibits are all important components of a lively academic environment. Within the regular course of study, students have an opportunity to explore diverse aspects of architecture related to urbanism, historic preservation, and community service. Since its founding, the school has always sponsored a foreign studies opportunity.
Exhibits
The Ewing Gallery in the Art and Architecture Building hosts numerous exhibits related to art and architecture. Adjacent to the Commons Space is an Exhibition Wall for more informal exhibits of students, faculty, and visiting artists and architects. In the Commons itself are more spontaneous exhibits of current student work.

Field Trips
Throughout the year, various field trips are organized by the school. The purpose of the field trips is to expose students to major cities with important architecture and to works of architecture that may not normally be open to the general public.

Lectures, Films, and Videos
The Robert B. Church Memorial Lecture Series is an annual endowed gift in memory of a former dean of the school. Over the years, the Church Lecture Series has allowed the school to bring prominent architects to Tennessee. The regular lecture series features architects, artists, theorists, planners, and historians who discuss their work and ideas. Films and videos also introduce students to a wide range of issues related to architecture, art, urbanism, and culture. Every spring, General Shale Corporation hosts a lecture as part of The Annual Architecture Spring Thing (TAAST), a traditional series of events organized by students.

Special Topic Design Studios
For many years, the school has provided opportunities for students to participate in off-campus design studios located in urban areas of the state. These studios combine creative work with community service to make an exceptional learning experience for advanced students.

Opportunities for Foreign Study
Students in their fourth year of study may elect to spend one semester studying abroad in a program organized either by the University of Tennessee, Knoxville, or by other accredited architecture programs. Since 1988, the school has had a very successful exchange agreement with the University of Krakow in Poland. In cooperation with Danish International Studies, a program is regularly offered in Copenhagen which attracts architecture students from around the world. The University of Tennessee, Knoxville, is involved in a recently established International Studies at the Bauhaus University in Weimar. The university also has an exchange agreement with the Royal Melbourne Institute of Architecture in Melbourne, Australia, with Chongqing Institute of Architecture and Engineering in Sichuan Province, China, and with the University of Frankfurt in Germany.

During the summer, many different summer programs abroad sponsored by other architecture schools are available to UT Knoxville students for transfer credit. Students are encouraged to seek new educational experiences.

The Profession’s Participation in the School
As the only accredited architecture program in the state, the School of Architecture tries to maintain a close relationship with the architectural community of the city, state, and region. Professionals regularly come to the school to attend and respond to student presentations, to conduct workshops, to participate in School events, and to interview graduating students. Every spring, the architecture community of Knoxville attends an exhibit of graduating students’ work, where students have the opportunity to discuss their designs with practicing architects.

Architecture, a broad field of study with many diverse ways for individuals to become involved in the profession. The profession itself is diversifying and changing rapidly due to changing financial structures, increasing specialization, expanding liability, and evolving electronic technology. Students are strongly urged to visit and work in different architectural offices in order to acquire a better sense of the profession and career commitment.

BACHELOR OF ARCHITECTURE
The curriculum for the Bachelor of Architecture degree includes a combination of required and elective courses offering the student both a solid professional program of study and a sound general education. While the majority of courses are designated as required, students may use the available architecture and general electives to broaden their education and to expand their knowledge in areas of personal interest.

All students studying for a Bachelor of Architecture degree will complete the following requirements in their course of study. For any additional specialized requirements, the student should refer to the Student Handbook of the School of Architecture and the student’s faculty advisor.

Requirements for the Bachelor of Architecture

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture 101, 102</td>
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<tr>
<td>Architecture 121, 122</td>
<td>4</td>
<td></td>
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<tr>
<td>Architecture 171, 172</td>
<td>7</td>
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<tr>
<td>Architecture 312*</td>
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<tr>
<td>English 101*, 102*</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Mathematics 125*</td>
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<td></td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Second Year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Architecture 212*, 213*</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Architecture 231</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Architecture 232</td>
<td>3</td>
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<tr>
<td>Architecture 271, 272</td>
<td>12</td>
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<tr>
<td>Physics 161*</td>
<td>3</td>
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<tr>
<td>Electives</td>
<td>9</td>
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</tr>
<tr>
<td>Third Year</td>
<td></td>
<td></td>
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<tr>
<td>Architecture 312</td>
<td>3</td>
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<tr>
<td>Architecture 331*, 332</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Architecture 341, 342</td>
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<tr>
<td>Architecture 371, 372</td>
<td>12</td>
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<tr>
<td>Electives</td>
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<td>Fourth Year</td>
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<tr>
<td>Architecture 431</td>
<td>3</td>
<td></td>
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<tr>
<td>Architecture 471, 472</td>
<td>12</td>
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<td>Electives</td>
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<td>Fifth Year</td>
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<tr>
<td>Architecture 482</td>
<td>4</td>
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<tr>
<td>Architecture 480</td>
<td>3</td>
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<tr>
<td>Design Course Option</td>
<td>12</td>
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<tr>
<td>Electives</td>
<td>15</td>
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</tr>
<tr>
<td>Total 171</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Meets University General Education Requirement.
2. Students are exempt from Mathematics 125 with a score of 25 or higher on the calculus readiness test. Students exempt from Mathematics 125 must take a higher level Quantitative Reasoning elective to meet the University General Education Requirement.
3. Elective distribution: two courses from the Social Sciences (SS) list; two courses from the Cultures and Civilizations (CC) list (which includes intermediate-level foreign languages); 12 hours of architecture electives; 15 hours of non-architecture electives, which must include one course from the Natural Sciences (NS) list with a laboratory and one course from the Communicating Orally (OC) list; 12 hours of free electives.
4. Two courses from Architecture 481, 482, 483, 484, 485, 486, or 489. Architecture 472 may be taken at any time in the last three semesters.
INTERIOR DESIGN PROGRAM

Professors
DeLong, A., PhD ........................................ Pennsylvania State
Rabun, J., PhD ........................................ Tennessee

Associate Professor
Robinson, M.B., MS ................................. Massachusetts

Assistant Professor
Tan, M., MFA ........................................ Iowa State

Interior design involves the study and transformation of the environment at the human scale. Interior designers understand how the design of furnishings, function, and space can improve the quality of life. As licensed professionals, interior designers analyze complex design challenges involving interior construction and technical considerations related to issues such as lighting, acoustics and mechanical systems. Their designs must meet code issues involving fire, electricity, structure, occupancy and materials. Interior design is broader than interior decorating, which focuses primarily on furniture and finishes.

In designing the micro-environment for specific functions or programs, interior designers are knowledgeable about how users experience space. Interior designers understand how each detail of a design affects the overall concept.

The goal of an education in interior design is to develop a synthetic thought process of critical thinking and creative problem solving while building technical knowledge and an understanding of the human environment. Creative thinkers, in architecture and interior design, must address all aspects of the built environment in its cultural, social, and ethical context.

The interior design program is professionally accredited by the Foundation of Interior Design Education Research (FIDER.) All graduates, with sufficient internship experience after graduation, are eligible to take the National Council for Interior Design Qualification (NCIDQ) exam.

Progression and Retention

Upon admission to the University of Tennessee, Knoxville, and the college, students may begin the interior design major. Progression into third year occurs after completion of Interior Design 272.

For progression into third year, students must meet the following criteria.

- Cumulative grade point average of 2.3 or greater.
- Cumulative grade point average in the major of 3.0 or greater in the following interior design courses – 141, 171, 200, 221, 271, 272, 231, 261, with no grade below a C.
- Portfolio Review accepted by faculty.
- Successful interview following completion of Interior Design 272.

For retention, student must meet the following criteria.

- Before enrolling in any interior design course, a grade of C or better must be made in each prerequisite required interior design course.
- Cumulative grade point average of 2.3 or greater.
- Grade of I must be removed before registration for next interior design course.

For graduation from the interior design program, students must meet the following criteria.

- Grade of C or better in all interior design courses.

Special Programs in Interior Design

Required Summer Internship

All interior design students are required to have a professionally based summer internship. The faculty will help students find appropriate placement, as well as monitor the student's progress in the internship.

Professional Community's Involvement

As the oldest accredited interior design program in the state, the interior design program tries to maintain a close relationship with the interior design community of the city, state, and region. Professionals regularly come to the school to attend and respond to student presentations, to conduct workshops, to participate in school events, and to interview graduating students.

Field Trips

All interior design students regularly participate in a variety of field trips to important works of design as well as to interior design conventions and product shows.

Opportunities for Foreign Study

Students in their fourth year of study may elect to spend one semester studying abroad in a program, organized either by the University of Tennessee, Knoxville, or by other accredited architecture programs. In cooperation with the Danish International Studies, a program is regularly offered in Copenhagen that attracts interior design students from around the world.

BACHELOR OF SCIENCE IN INTERIOR DESIGN

The interior design curriculum is a rigorous course of study which combines technical courses, design studio courses, humanities, and a wide choice of electives. Through coursework and field study experiences, students develop specialized problem solving skills and knowledge for the analysis, planning and design of interior architectural environments. They apply the use of lighting, color, mechanical systems, and furnishings as they design spaces for both residential and commercial settings.

Beyond the professional core, students are encouraged to pursue interests related to horticulture, theater design, historic preservation, business, or other personal interests.

Requirements for the Bachelor of Science in Interior Design

First Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture 121, 171, 172</td>
<td>9</td>
</tr>
<tr>
<td>Interior Design 141, 171, 172</td>
<td>8</td>
</tr>
<tr>
<td>Mathematics 123* or 125*</td>
<td>3</td>
</tr>
<tr>
<td>English 101*, 102*</td>
<td>6</td>
</tr>
<tr>
<td>Social Sciences Elective*</td>
<td>3</td>
</tr>
<tr>
<td>Natural Sciences Elective (must have a lab)*</td>
<td>4</td>
</tr>
</tbody>
</table>

Second Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interior Design 200, 221, 261, 271, 272</td>
<td>.19</td>
</tr>
<tr>
<td>Architecture 231</td>
<td>3</td>
</tr>
<tr>
<td>Art History 172*, 173*</td>
<td>6</td>
</tr>
<tr>
<td>Communications Elective*</td>
<td>3</td>
</tr>
<tr>
<td>Communicating Orally Elective*</td>
<td>3</td>
</tr>
</tbody>
</table>

Third Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interior Design 311, 312, 331, 371, 372, 360*</td>
<td>.27</td>
</tr>
<tr>
<td>Materials Science and Engineering 220</td>
<td>3</td>
</tr>
<tr>
<td>Communications Orally Elective*</td>
<td>3</td>
</tr>
</tbody>
</table>

Summer (ID 420)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Fourth Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interior Design 471, 472, 480</td>
<td>.16</td>
</tr>
<tr>
<td>Elective (Art Studio)</td>
<td>3</td>
</tr>
<tr>
<td>Elective (Professional)</td>
<td>3</td>
</tr>
<tr>
<td>Courses and Civilizations Electives*</td>
<td>6</td>
</tr>
<tr>
<td>Social Sciences Elective*</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

Total 137

* Meets University General Education Requirement.
1  Select Mathematics 123 or 125 (required) and Interior Design 460 (required).
2  Select 101, 102 (required) and one other writing-intensive course (WC).
3  Select 6 hours from Anthropology 130; Psychology 110; Sociology 110, 120; Economics 201 (if you plan to minor in business administration); Women's Studies 230; or other approved course (SS) designated.
4  Select Physics 161 (required) and one other designated Natural Science (NS) such as Astronomy 161, Biology 101, Biology 111, Chemistry 120, Geology 101.
5  Select 3 hours from Communication Studies 210 or 240.
6  Select any Art, Art Ceramics, Art Design/Graphic, Art Drawing, Art Media Arts, Art Painting, Art Printmaking, or Art Sculpture.
7  Select from interior design or approved architecture courses not required for graduation.
8  Select 6 hours from Classics 201; Asian Studies 101, 102; any designated history course (CC); Medieval Studies 201; Religious Studies 101, 102; or two foreign language (CC) designated.
The College of Arts and Sciences is home to a wide array of academic disciplines and interdisciplinary programs. Such diverse areas of study as computer science and classics, anthropology, women’s studies and Latin American studies are represented among the 26 departments and schools and 13 special programs that compose the college.

The faculty of the college are committed to providing both comprehensive general education and concentrated study in a particular field to all students enrolled at the University of Tennessee, Knoxville. General education offers opportunities to master the basic learning skills necessary to understand a specialized area of study and is essential for the continuation of learning throughout life.

Arts and Sciences faculty are also committed to educating students in a discipline. Education with a disciplinary focus prepares students for further study at the graduate level and for careers in business, public service, or any other endeavor. As our world becomes both more specialized and more changeable, the need to find the right balance between general and specialized knowledge becomes essential.

The central purposes of a liberal education include the encouragement of intellectual tolerance, a dedication to the quest for knowledge as a worthwhile goal in and of itself, and the cultivation of a responsible, creative, individual mind. These qualities enable one to develop an ability to reason and to express oneself clearly, an incentive to absorb emerging knowledge, and a competence to confront the uncertainties of human experience. For the student whose interests and talents lead into research, scholarship, and teaching, a liberal education provides an invaluable foundation. For the individual who enters business, industry, the professions, or government service, it furnishes a broadly useful and well-rounded educational background. For all, it offers the opportunity to share in a rich intellectual heritage, in the adventures of the mind, and in the life of the educated imagination. A liberally educated person is identified not so much by specific knowledge as by quality of mind and by creative response to the challenges of the times.

The great universities of the world are so labeled because their faculties have earned the reputation of being renowned scholars. The University of Tennessee, Knoxville, has earned such a reputation because of the quality of the research and creative activity of its faculty. The student who studies in the College of Arts and Sciences has joined a community of scholars. To study with such a talented faculty is to experience the best education possible.

The faculty of the College of Arts and Sciences provide to all students a general education and to thousands of students a year a more specialized education in any one of twenty-six disciplines and thirteen or more interdisciplinary programs. The college’s faculty help their students prepare for any and all careers. Faculty research and creative activity are the foundations on which education in this college is built. As a result of that faculty endeavor, the lives of students are enriched and the world’s body of knowledge grows. That is the basic mission of the College of Arts and Sciences faculty in a research university.

Programs of Study

Seeking the broad, general goals of a liberal education, students come into the college also with a wide variety of specific educational and vocational objectives. Recognizing this diversity, the college offers a number of different programs of study leading to the baccalaureate degree and also several pre-professional curricula which prepare students for advanced study but do not lead to a degree from this college.

Bachelor of Arts

The Bachelor of Arts represents the attainment of a broad knowledge of the arts and sciences as well as a comprehensive understanding of one or more areas of special interest. Three programs leading to this degree are open to the student.

Basic Program

The program appropriate for most Bachelor of Arts students is developed around the basic skills and distribution requirements plus intensive study in one or more of the specified departmental or interdepartmental major fields described below.

Individualized Program

Designed for students whose educational goals are best met by a program tailored to their particular needs, it is the same as the basic program in broad area requirements but permits the student to develop an individual concentration incorporating work in two or more departments.

College Scholars Program

Intended for a limited number of students who are especially...
qualified and motivated and who have been selected to undertake this honors program, the College Scholars Program permits the students maximum freedom to design a curriculum to meet particular interests and goals.

Bachelor of Science

The Bachelor of Science degree, offered in selected departments and programs, is designed for students who wish to pursue a more scientifically or professionally oriented program of study. Three programs leading to this degree are offered.

Basic Program

The basic program for the Bachelor of Science degree contains basic skills and distribution requirements similar to the basic program for the Bachelor of Arts as well as a unique set of requirements for the major including additional study in mathematics, statistics, or laboratory sciences.

Pre-Professional Program

The pre-professional program is offered for those who wish to participate in the cooperative 3+1 curricula in the health sciences (medicine, dentistry, pharmacy, veterinary medicine, or nuclear medicine technology). Students taking one of the health sciences curricula proceed directly to specialized training in the chosen area after the third year of Arts and Sciences study and complete the first year of professional study in lieu of satisfying the requirements for the Bachelor of Science degree with a major concentration in the college.

Bachelor of Science in Chemistry

See Department of Chemistry.

Bachelor of Fine Arts

See School of Art.

Bachelor of Music

See School of Music.

Requirements for Degrees

To earn a Bachelor of Arts or Bachelor of Science degree, these requirements must be completed.

- All university degree requirements as described in the section, Academic Policies and Procedures – General Requirements for a Bachelor’s Degree.
- A minimum of 120 credit hours.
- At least 42 credit hours in courses numbered 300 or above.
- Appropriate work to satisfy basic skill and distribution requirements, counting no course in more than one area. (This is not a requirement in the College Scholars Program.)
- Completion of at least one major (24-40 credits at 200 level or above for Bachelor of Science majors and 24-37 credits at 200 level or above for Bachelor of Arts majors); upper level distribution requirements.
- Completion of at least one major (24-40 credits at 200 level or above for Bachelor of Science majors and 24-37 credits at 200 level or above for Bachelor of Arts majors); upper level distribution requirements.

Students may choose to develop one or more minors (minimum 15 hours at the 200-level and above).

Satisfactory/No Credit

A few courses in the college are offered only on a Satisfactory/No Credit (S/NC) basis and students may elect to take others on this basis, except in areas where the option is specifically prohibited. Such courses, if successfully completed, will count as hours for graduation although neither S nor NC grades will be calculated in the student’s grade point average. Satisfactory is defined as C or better work on the traditional grading scale and No Credit is defined as less than C. The following regulations apply.

- S/NC courses, except those offered only on this basis, may not count for basic skills or distribution requirements or major and minor requirements unless specifically permitted by petition. This restriction applies also to major or minor prerequisites or corequisites.
- The maximum number of S/NC elective hours which may be counted toward graduation is 20, exclusive of courses offered only S/NC, physical education courses, and/or satisfactory hours earned by examination, military service, etc.
- A transfer student with S/NC or equivalent credit earned prior to admission to the University of Tennessee, Knoxville, in a course which satisfies a basic skills or distribution requirement may count it for that purpose. In the case of a course which satisfies a major or minor requirement, statement 1 (above) applies.

The option of taking courses on a S/NC basis is provided to encourage the able student to venture beyond the limits of those courses in which the student does well and, motivated by intellectual curiosity, to explore subject matter in which performance may be somewhat less outstanding than work in preferred subject fields.

Note: Students planning to seek admission to graduate or professional schools (especially in the health sciences) should discuss with their advisors possible limitations on exercise of the S/NC option before registering for courses on this basis.

Basic Skills and Distribution Requirements

The Bachelor of Arts and the Bachelor of Science degrees share the same program of basic skills and distribution requirements (except where noted otherwise).

Basic Skills

All students who earn a degree in the College of Arts and Sciences must have demonstrated skill in the use of the English language, the ability to acquire another language, and the ability to use the tools of quantitative analysis or formal logic. The specific requirements are as follows.

English Composition

Skills necessary to write persuasive, logical and coherent essays in English; to read critically texts from a variety of media; to evaluate and cite sources in research; and to be aware of how to write for different audiences and purposes.

Students may meet this requirement in one of two ways.

- By completing 6 hours in English writing courses – either English 101 and 102; or English 118 and English 102; or English 131 and 132. Students who obtain a grade of A or B in 118 may complete their freshman requirement with 102, or with a sophomore literature course in the English Department, or English 355. The sophomore literature course may, if so listed, also be used toward the humanities distribution requirement.
- By earning a score of 4 or 5 on the College Board Advanced Placement Test in Literature and Composition. Credit in English 101 is earned with a score of 4 or 5 on the Advanced Placement Test in Language and Composition.

Placement Information

Eligibility for English 118 will be determined by ACT or SAT scores and a placement exam. Selected students will be placed in English 103 based on ACT or SAT scores and may not drop this course without departmental approval. Details are available from the English Department.

A student must complete the English composition requirement prior to enrolling in English courses numbered 200 or higher.
Communicating through Writing

To fulfill the University General Education Requirement, all students must complete the first year composition sequence described above, and, upon completion of English 101 and 102 or their equivalent, take one other course designated as (WC) in the Undergraduate Catalog. The WC course may or may not be within the student’s major. WC courses may also satisfy college distribution requirements.

Communicating Orally

The ability to communicate one’s ideas orally is as important as the ability to express them in writing. All students must fulfill the University General Education Requirement by completing one course with an (OC) designation. The OC course may or may not be within the student’s major. OC courses may also satisfy college distribution requirements.

Foreign Language

Skills necessary to learn the basic structures and vocabulary of a foreign language; to read, write, understand, and, for modern languages, speak a foreign language; to understand how to learn another language; to better understand one’s own native language; and to complement the study of other cultures or civilizations.

Students may meet this requirement in one of three ways.

• Completion of the intermediate-level sequence of a foreign language. Any one of the following sequences will satisfy the requirement – Asian Languages 231-232 or 251-252; Asian Studies 221-222, 241-242, or 261-262; French 211-212 or 217-218; German 201-202; Classics (Greek) 261 and 264; Classics (Latin) 251 and 252; Italian 211-212; Portuguese 211-212; Russian 201-202; Spanish 211-212 or 217-218.
• Demonstration of competence on a departmental placement or proficiency examination or by AP or CLEP credit.
• Students whose native language is not English may satisfy the requirement with English 131 and 132 and any two courses from List A: Literature under the Humanities Distribution Requirement.

Placement Information

All students who wish to enroll in a French, German, Latin, or Spanish course, who have completed at least two years of this language in high school, and who have not yet taken a college course in the language must take a placement examination before enrolling. Placement in the appropriate course will be determined by the score on the examination. Examinations will be given during summer orientation and at designated times during the fall, spring, and summer. Students who place into 200-level courses will receive 6 hours of elementary language credit, provided that they do not subsequently enroll and receive credit for any 100-level course in the same language. If they do, elementary placement credit is forfeited and removed from the student’s transcript. Students who place into 300-level courses will receive 6 hours of intermediate language credit. Under no circumstances may any student earn more than 6 hours of language placement examination credit. Students who feel they have been inappropriately placed should consult the appropriate language section.

Mathematics and Quantitative Reasoning

Skills in mathematics, quantitative reasoning, and computing required for estimation and calculation, understanding logical processes, critical analysis, problem solving and decision making. Students may meet this requirement by completion of two of the following courses, or one of the following courses and Computer Science 100 or 102.

• Mathematics 113, 115, 117, 123, 125, 141, 142, 147, 148, 151, 152, 202.
• Statistics 201, 207.

Distribution Requirements

All of these requirements are designed to enhance the skills of thinking critically and analytically, and of effective communication and writing through study and use of different kinds of human knowledge. The distribution requirements are in two parts. Part A: Divisional Distribution Requirements, which require students to take courses in the various divisions of the college, and Part B: Upper-Level Distribution Requirements.

Part A: Divisional Distribution Requirements

Natural Science

A two-course laboratory sequence and an additional course that will introduce students to the increasingly important role of science and technology in all aspects of modern life. This requirement will introduce students to the basic discoveries, knowledge and logical organization of scientific disciplines and to development and testing of hypotheses. Laboratory courses will develop skills in experimental tests of hypotheses; lectures will introduce students to the role of scientific methodology and problem-solving in society.

Students may meet this requirement by completion of a two-course sequence from List A and an additional course from List A or List B.

List A

Astronomy 161-162, 217-218; Biology 101-102, 111-112; Chemistry 100-110, 120-130, 128-138; Geography 131-132; two from Geology 101, 102, 103; Geology 107-108 (students who earn an A in 101 or a B or better in 107 may take 108); Physics 135-136, 137-138, 221-222.

List B

Anthropology 110, 304; Astronomy 151; 152; Biochemistry and Cellular and Molecular Biology 230, 306 (same as Anthropology 304); Biology 130, 157; Chemistry 150, 160; Computer Science 140, 160; Ecology and Evolutionary Biology 309, 330, 410; Geology 201, 202, 203, 205; Mathematics 231; Microbiology 210; Physics 101, 102.

Social Science

Courses that will introduce students to the idea of individuals in societies, to perspectives and methods used by social scientists, and to the uses of these perspectives and methods in thinking about current social, economic and political issues and problems.

Bachelor of Arts students may meet this requirement by completion of four courses from at least two departments listed below. To meet the University General Education Requirement, two of the courses selected must be from List A. The other courses can be chosen from List A or List B. Bachelor of Science students must complete two courses from different departments. To meet the university’s general education requirement, both courses must be selected from List A.

List A

Africana Studies 201, 202; Anthropology 130; Economics 201, 207; Geography 101, 102; Political Science 102; Psychology 110, 117; Sociology 110, 117, 120, 127.

List B

Africana Studies 310; Anthropology 120, 362; Audiology and Speech Pathology 320; Communication Studies 201, 220, 260, 330; Ecology and Evolutionary Biology 304; Educational Psychology 210; Geography 320, 340; Global Studies 250; Linguistics 200; Musicology 290, 310; Political Science 101, 107; Psychology 220, 360; Religious Studies 232, 301; Sociology 232, 250, 260, 344, 370; Women’s Studies 220.

Humanities

Courses that will provide skills to appreciate and interpret literary, philosophical, or religious texts, and to participate as an appreciative observer or artist in a discipline within the visual, spatial, musical, theatrical, or written arts.
To meet the University General Education Requirement, students must choose two courses identified by an asterisk (*) from the list of courses below.

Bachelor of Arts students must complete three courses. At least two of the three courses must be chosen from those indicated by asterisks (*). In addition, one course must be selected from List A, one from List B, and one from List A, B, or C. Bachelor of Science students must complete two courses. Both courses must be chosen from those indicated by asterisks (*). One course must be selected from List A or B.

Writing-emphasis courses require at least 2,000 words, normally comprising one sustained essay or report of at least 1,000 words plus additional writing assignments such as in-class essay exams, journals, book reviews, etc. The purpose of the requirement is to help students learn course materials through writing; develop critical thinking skills; demonstrate the ability to sustain an argument; and strengthen existing writing skills.

List A – Literature

List B – Philosophical and Religious Thought

List C – Study or Practice of the Arts

Non-U.S. History

A two-course sequence to enhance appreciation of the diversity of the world’s societies, their cultures, and histories. This requirement will develop understanding of how the past shapes individuals and communities in practical decisions and in understanding of self and world; will contribute to skills in explaining change and continuity of human society and the interpretation of people, events and trends in context of the ideas, values, social and political conditions that affect them.

Students may meet this requirement by completion of one of the following sequences. All courses are writing-emphasis courses.


Part B: Upper Level Distribution Requirements

Courses that use skills and knowledge acquired in the basic skills and divisional distribution areas to understand and analyze a highly interdependent world system and to make informed comparisons among contemporary cultures. These courses develop understanding of United States society, of national and international diversity, and of critical issues of the modern world.

Bachelor of Arts students may meet this requirement by completion of two courses from one list and one course from the other list. Bachelor of Science students must complete one course from each list. All courses are writing-emphasis courses.

List A – United States Studies
African Studies 315, 331, 333, 343, 352, 429, 445, 446, 480, 484; American Studies 310, 312, 334, 343, 355, 423, 469; Anthropology 305, 310, 312, 315, 320, 321, 360, 363; Art History 471, 472, 473, 483; Cinema Studies 312, 334, 469; Communication Studies 450, 466, 469, 476; Ecology and Evolutionary Biology 305; Economics 331, 333, 361, 362, 371, 413, 435, 472; English 331, 332, 333, 334; Geography 361, 363, 366, 423, 441, 443; Geology 381; History 350, 351, 445, 446, 451, 453; Legal Studies 330, 340, 455, 469; Philosophy 390; Political Science 311, 312, 330, 374; Psychology 434; Religious Studies 351, 352, 355; Sociology 310, 340, 434, 455; Women’s Studies 310, 332, 340, 434, 453, 466, 469, 476, 484.

List B – Foreign Studies
This list is subdivided by geographic area and topic. If Western Civilization (History 241-242) or Medieval Civilization (Medieval Studies 201-202) is used to satisfy the non-United States history divisional requirement, courses from the European concentration may not be used to satisfy this requirement.

In addition to the courses listed here, this requirement may be satisfied by literature courses taught in Chinese, French, German, Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Sanskrit, or Spanish. Literature courses in English translation will not meet this requirement.

Africa
African Studies 371, 372, 373, 379, 381, 421, 452, 461, 462, 463; Anthropology 373; Art History 461, 462, 463; Geography 379; History 371, 372, 381; Political Science 452; Religious Studies 373.

Asia
Art History 411, 415, 416, 419, 464; Asian Languages 315, 413; Cinema Studies 315; History 389, 390, 391, 392; Japanese 413; Philosophy 374, 376, 379; Political Science 454; Religious Studies 374, 376, 379, 383, 474.

Europe
Anthropology 436, 462; Art History 425, 431, 441, 442, 451, 452, 453, 454, 475, 476; Cinema Studies 323, 325, 420, 421; Classics 381, 382, 383, 436; English 301, 302, 321, 401, 422; French 420, 431, 432; Geography 371; German 323, 350, 363; History 319, 320, 323, 429, 432, 490; Italian 414, 421; Judaic Studies 322, 350, 425, 431; Linguistics 321; Medieval Studies 322, 403, 405, 431, 441, 445, 451; Philosophy 320, 322, 324, 326; Political Science 361, 459; Russian 325, 371, 372; Women’s Studies 383, 422, 432.

Latin America

Middle East

Critical Issues in Foreign Studies
African Studies 442; Cinema Studies 482, Economics 322; Geography 345, 351; Global Studies 482; History 374, 375, 395, 484; Judaic Studies 395, 484; Mathematics 400; Modern Foreign Languages and Literatures 482; Political Science 350, 365; Sociology 360, 442, 446, 465; Women’s Studies 360.

Majors
Requirements for specific majors vary by program and are discussed under each department or program. A major consists of at least 24-40 credit hours in courses numbered 200 or above as specified by the department or program. Courses taken to sat-
isfy the university’s OC and WC requirements may, when appropriate, be used in the major. An additional 6 credits taken in the major may also be used to satisfy basic skills or divisional distribution requirements. A minimum grade of C must be earned in every course counted as part of the major. This grade requirement does not apply to prerequisites and corequisites unless the department has specific progression requirements.

Students transferring from other institutions must complete at least 9 credit hours at the University of Tennessee, Knoxville, in each major awarded on this campus. Students may elect as many courses as desired in any department or program. In lieu of a major, students may develop an individualized program (described below). Majors available in the basic program for a Bachelor of Arts or Bachelor of Science include: anthropology, art, art history, auditory, biological sciences, chemistry, classics, computer science, economics, English, French, geography, geology, German, history, interdisciplinary programs, Italian, mathematics, music, philosophy, physics, political science, psychology, religious studies, Russian, sociology, Spanish, speech pathology, statistics, and theatre.

Optional Multiple Majors

After the general requirements of basic skills, distribution and a major have been satisfied, additional majors may be recorded on the transcript without regard to course overlap among majors or among the additional majors and basic skills and distribution requirements. Students developing multiple majors must declare this intent at the time of application for graduation. Once a student has graduated, the establishment of additional majors becomes subject to university second degree requirements.

Students who satisfy the requirements of a degree in a college other than Arts and Sciences may also major inside the College of Arts and Sciences with the approval of the degree-granting unit. These students need complete only the major requirements, not the basic skills or distribution requirements for Arts and Sciences degrees. The arts and sciences major may also be listed on the student’s transcript.

Minors

At the time of application for graduation, single or multiple minors may be recorded on the academic record without regard to course overlap among minors and major or among minors and basic skills and distribution requirements. Students who satisfy the requirements of a degree in a college other than Arts and Sciences may also minor inside the College of Arts and Sciences with the approval of the degree-granting unit. The minimum requirement for a minor is 15 credit hours in courses numbered 200 or above. Minors are available in most departments or programs in which majors are offered and also in astronomy, Portuguese, Chinese, Japanese, and cinema studies. Minors may be developed in other colleges or schools of the university, but must be approved by the head of the department in which the minor is proposed. At least 6 of the 15 credit hours required for a minor must be completed at the University of Tennessee, Knoxville.

Business Administration Minor for Non-Business Students

For details, see the College of Business Administration section of this catalog and contact the Undergraduate Programs Office (College of Business Administration), 112 Aconda Court.

Elective Courses

At least one-fourth of each student’s curriculum in the basic program will be made up of courses selected according to the individual’s interests to supplement and support the work being done in the major and basic skills and distribution requirements. This dimension of the student’s experience at the university represents that freedom within which total education may be rounded out and enriched. Elective courses should be chosen with care so that they will truly enhance the student’s total program and help in the achievement of well thought-out educational objectives.

Some of the choices which the student might make in selecting the elective courses are additional courses in the major field; a related minor; an area in the arts; an off-campus semester.

Only the student’s imagination and initiative and the willingness to conceive and develop a meaningful academic program limit the choices of supplementary elective courses.

Program for Prospective K-12 Teachers

Student planning careers in K-12 teaching must complete an Arts and Sciences major in a department, in one of the interdisciplinary programs, or, if eligible, in the College Scholars Program. Prospective secondary teachers must fulfill the requirements of appropriate content majors; prospective elementary teachers may choose any major in the College of Arts and Sciences.

To be licensed for teaching, students must also gain formal admission to the Teacher Education Program in the College of Education, Health, and Human Sciences. The process involves successful completion of a series of requirements including presentation of satisfactory scores on certain tests, completing professional courses in the College of Education, Health, and Human Sciences, maintenance of a 2.7 or higher GPA, and completing a five year program emphasizing practical application. For details, see the College of Education, Health, and Human Sciences section of this catalog and contact the Advising Center, Claxton Complex 332.

COLLEGE SCHOLARS PROGRAM

A limited number of freshmen and sophomores, entering transfer students with fewer than 42 credit hours, and resident students with fewer than 62 credit hours are invited each year to enter this distinguished honors curriculum. Selection is based on previous academic record, test scores, recommendations, a written essay, and a personal interview. Admission is provisional for two semesters; continuation depends upon maintenance of a satisfactory record (normally 3.25 or above) and evidence of ongoing motivation and interest.

The College Scholars Program affords the highest degree of freedom to the student in developing a meaningful curriculum. Each program is worked out individually with a special advisor (mentor) who under ordinary circumstances continues to advise the student throughout the college career. Together they determine what kinds of course work and/or other learning experiences will best fulfill the student’s objectives, while at the same time achieving the kind of liberal education the college believes is important for every student. In the final two years of the program, students will be heavily involved in independent study or research required of all college scholars. When college scholars fulfill departmental requirements for additional majors or minors, these will be recorded on the scholars’ transcripts. Scholars will not be required to meet Basic Skills or Distribution requirements in order to have such majors or minors officially recognized, but will be required to meet the University General Education Requirement.

Further information and applications may be obtained from Arts and Sciences Advising Services.

INDIVIDUALIZED PROGRAM

Existing Arts and Sciences majors will satisfy the needs of most students entering the university. Some, however, come with particular strengths in their preparation or with special interests which do not coincide with traditional departmental or interdepartmental majors. For these students, the individualized program has been established as a means of attaining a closer correlation between student needs and academic programs.

Students in the individualized program will satisfy all the basic skills and distribution requirements. Individualization takes place in the area of concentration. The quantitative aspect of the area
of concentration is the same as for most majors in the basic program (i.e., a minimum of 24 hours in courses numbered above 200), and at least two-thirds of the courses must be selected from disciplines within the College of Arts and Sciences. The student may design a program in consultation with an advisor and submit it for consideration to the Committee on the Individualized Program. The proposed courses of study must have some clear central purpose, usually implemented through intensive work in two or three departments; an undirected scattering of courses will not be approved. Students must submit their proposals for review by the committee prior to the completion of 75 hours of coursework. For further information contact Arts and Sciences Advising Services.

**MEDICAL TECHNOLOGY MAJOR**

Students who complete the medical technology curriculum receive the Bachelor of Science degree with a major in medical technology from the College of Arts and Sciences. The curriculum requires a minimum of 90 hours of credit which includes the Basic Skills and Distribution requirements of the college and the University General Education Requirement prior to application for admission to a final year of study at the University of Tennessee Medical Center, Knoxville (UTMCK). After the course of study is completed, UTMCK awards the student a Certificate of Laboratory Training. Students are then eligible for examination by the Board of Registry of the American Society of Clinical Pathologists to earn certification as registered medical technologists. Admission to the clinical year is at the discretion of the admissions committee of the medical technology program at the UT Medical Center. Admission to and successful completion of the program below does not assure admission to the clinical phase of the medical technology program.

### Requirements for the Bachelor of Science • Medical Technology Major

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 101*-102*</td>
<td>6</td>
</tr>
<tr>
<td>Biology 130</td>
<td>4</td>
</tr>
<tr>
<td>Biology 140</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 120*-130*</td>
<td>8</td>
</tr>
<tr>
<td>Foreign Language – Intermediate Level*</td>
<td>6</td>
</tr>
<tr>
<td>Mathematics*</td>
<td>6</td>
</tr>
<tr>
<td>Communicating Orally (OC) course*</td>
<td>3</td>
</tr>
<tr>
<td><strong>Second Year</strong></td>
<td></td>
</tr>
<tr>
<td>4Chemistry 110</td>
<td>4</td>
</tr>
<tr>
<td>Biochemistry and Cellular and Molecular Biology 230</td>
<td>5</td>
</tr>
<tr>
<td>Biology 240</td>
<td>4</td>
</tr>
<tr>
<td>Microbiology 310-319</td>
<td>5</td>
</tr>
<tr>
<td>Humanities* (one course from List A or B)</td>
<td>3</td>
</tr>
<tr>
<td>Non-US History*</td>
<td>6</td>
</tr>
<tr>
<td>Communicating through Writing (WC) course*</td>
<td>3</td>
</tr>
<tr>
<td><strong>Third Year</strong></td>
<td></td>
</tr>
<tr>
<td>Chemistry 310-319</td>
<td>4</td>
</tr>
<tr>
<td>Biochemistry and Cellular and Molecular Biology 310</td>
<td>4</td>
</tr>
<tr>
<td>Microbiology 420-429</td>
<td>5</td>
</tr>
<tr>
<td>Microbiology 430</td>
<td>3</td>
</tr>
<tr>
<td>Social Sciences*</td>
<td>6</td>
</tr>
<tr>
<td>Humanities* (one course from List A, B, or C)</td>
<td>3</td>
</tr>
<tr>
<td>Upper-Level Distribution (one course from List A and one course from List B)</td>
<td>6</td>
</tr>
<tr>
<td>Elective</td>
<td>0-3</td>
</tr>
<tr>
<td><strong>Fourth Year</strong></td>
<td></td>
</tr>
<tr>
<td>Medical Technology course of study at UT Medical Center in Knoxville (12-month program)</td>
<td>36</td>
</tr>
</tbody>
</table>

* Meets University General Education Requirement.

1 Students who have previously completed Biology 101 and 102 for their lab science requirement may substitute these two courses for Biology 130.

2 This plan assumes a student has had enough language background in high school to begin the intermediate language sequence at UTK.

3 Math 115-125, Math 123-125, Math 151-152, or Math 141-142 are required for pre-medical technology students. Math placement depends on high school courses and grades, ACT scores, and BA/BS requirements.

4 Students who have completed Chemistry 350-360, 369 may substitute it for Biochemistry 310 and Chemistry 110.

5 BS students must complete a minimum of 2 courses from the University General Education Requirement in Social Sciences. The courses must be from two departments.

6 Classics 273 Medical and Scientific Terminology is a highly recommended elective. One year of U.S. history must have been completed in high school or college prior to graduation from the medical technologist program.

**PRE-PROFESSIONAL PROGRAMS MAJOR NUCLEAR MEDICINE TECHNOLOGY CONCENTRATION**

The nuclear medicine technology curriculum requires a minimum of 90 hours credit, including the college's Basic Skills and Distribution requirements and the University General Education Requirement, prior to application for admission to a final year of study at the University of Tennessee Medical Center, Knoxville. Students who complete the nuclear medicine technology program at UTMCK receive the Bachelor of Science with a major in pre-professional programs with a concentration in nuclear medicine technology from the College of Arts and Sciences.

Admission to the nuclear medicine technology program at UTMCK is at the discretion of the admissions committee of that department; successful completion of the three-year curriculum noted below does not assure admission to the program.

### Requirements for the Bachelor of Science • Pre-Professional Programs Major • Nuclear Medicine Technology Concentration

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 101*-102*; or equivalent</td>
<td>6</td>
</tr>
<tr>
<td>Chemistry 120*-130*</td>
<td>8</td>
</tr>
<tr>
<td>Mathematics*</td>
<td>6</td>
</tr>
<tr>
<td>Biology 130</td>
<td>4</td>
</tr>
<tr>
<td>Biology 140</td>
<td>4</td>
</tr>
<tr>
<td>Communication Studies 210*</td>
<td>3</td>
</tr>
<tr>
<td><strong>Second Year</strong></td>
<td></td>
</tr>
<tr>
<td>Chemistry 350-360, 369</td>
<td>8</td>
</tr>
<tr>
<td>Foreign Language - Intermediate Level*</td>
<td>6</td>
</tr>
<tr>
<td>Humanities* (one course from List A or B)</td>
<td>3</td>
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<tr>
<td>Social Sciences*</td>
<td>6</td>
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<tr>
<td>Computer Science 100 or 102</td>
<td>3-4</td>
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<tr>
<td><strong>Third Year</strong></td>
<td></td>
</tr>
<tr>
<td>Biochemistry and Cellular and Molecular Biology 230</td>
<td>5</td>
</tr>
<tr>
<td>Ecology and Evolutionary Biology 240</td>
<td>4</td>
</tr>
<tr>
<td>Physics 221-222</td>
<td>8</td>
</tr>
<tr>
<td>Humanities* (one course from List A, B, or C)</td>
<td>3</td>
</tr>
<tr>
<td>Upper-Level Distribution (one course from List A and one course from List B)</td>
<td>6</td>
</tr>
<tr>
<td>Communicating through Writing (WC) course*</td>
<td>3</td>
</tr>
<tr>
<td><strong>Fourth Year</strong></td>
<td></td>
</tr>
<tr>
<td>Completion of Nuclear Medicine Technology program at the University of Tennessee Medical Center, Knoxville UTMCK (12 month program) or completion of major program and Bachelor of Arts or Bachelor of Science requirements</td>
<td></td>
</tr>
</tbody>
</table>

### Fall Semester

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>410 Physics for Nuclear Medicine I</td>
</tr>
<tr>
<td>411 Nuclear Instrumentation</td>
</tr>
<tr>
<td>412 Radiopharmacy</td>
</tr>
<tr>
<td>420 Clinical Nuclear Medicine I</td>
</tr>
<tr>
<td>460 Clinical Practicum I</td>
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### Spring Semester

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>415 Physics for Nuclear Medicine II</td>
</tr>
<tr>
<td>425 Computer Applications in Nuclear Medicine</td>
</tr>
<tr>
<td>430 Clinical Nuclear Medicine II</td>
</tr>
<tr>
<td>460 Clinical Practicum II</td>
</tr>
</tbody>
</table>
PRE-DENTAL CONCENTRATION

The college offers a three-year program leading to a Bachelor of Science degree and a four-year program leading to a Bachelor of Arts or Science degree for students preparing for the study of dentistry at UT Health Science Center, Memphis. The Doctor of Dental Surgery (DDS) degree is conferred by the College of Dentistry upon completion of four years of professional study at Memphis after completing either of the two programs options. Bulletins describing the pre-dental program options in detail may be obtained from Arts and Sciences Advising Services.

The three-year program leading to a Bachelor of Science degree with a major in pre-professional programs from the University of Tennessee, Knoxville, is based upon the program outlined below. In the three-year program, the student must complete at least 90 prescribed credit hours while enrolled in the College of Arts and Sciences, and the Bachelor of Science degree is granted upon satisfactory completion of the first year of study in Memphis. The requirement for a major is waived for those taking their fourth year at the University of Tennessee Health Science Center, Memphis. Students must complete the last 30 hours of credit in residence at the University of Tennessee, Knoxville, before enrolling in the College of Dentistry. Admission to the College of Dentistry is at the discretion of that college; admission to and successful completion of the program below does not assure admission to the College of Dentistry. Although the Bachelor of Arts/Bachelor of Science is not required for admission to the College of Dentistry, most students accepted into the study of dentistry have the baccalaureate degree before admission. Therefore, pre-dental students are encouraged to plan to complete all requirements for the degree before enrolling in the College of Dentistry.

Requirements for the Bachelor of Science

- **Pre-Professional Programs Major**
  - **Pre-Dental Concentration**

<table>
<thead>
<tr>
<th>Year</th>
<th>First Year</th>
<th>Second Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 101* 102*</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Biology 130</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Biology 140</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Chemistry 120*-130*</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Mathematics* BA/BS requirements</td>
<td>6-8*</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>90 minimum</td>
<td>120</td>
</tr>
</tbody>
</table>

* Meets University General Education Requirement.
1 Math placement depends on high school courses and grades, ACT scores, and BA/BS requirements. All students must complete the Mathematics and Quantitative Reasoning Basic Skills requirement as outlined in the Arts and Sciences Curriculum Guide. Math 130 or any calculus course is a prerequisite to Physics.
2 Students who have previously completed Biology 101 and 102 may substitute these two courses for Biology 130.
3 This plan assumes a student has had enough language background in high school to begin an intermediate language sequence at UT-Knoxville.
4 Bachelor of Science students must complete a minimum of 6 credits from at least two departments for the Social Science requirement. The two courses must satisfy the University General Education Requirement in Social Sciences.

PRE-MEDICAL CONCENTRATION

The college offers a three-year program leading to the Bachelor of Science degree and a four-year program leading to a Bachelor of Arts or Science degree for students preparing for the study of medicine at UT Health Science Center, Memphis. The Doctor of Medicine (MD) degree is conferred by the College of Medicine upon completion of four years of professional study at Memphis after completing either of the two programs options. Bulletins describing the pre-medical program options in detail may be obtained from Arts and Sciences Advising Services.

The three-year program leading to a Bachelor of Science degree with a major in pre-professional programs from the University of Tennessee, Knoxville, is based upon the program outlined below. In the three-year program, the student must complete at least 90 prescribed credit hours while enrolled in the College of Arts and Sciences, and the Bachelor of Science degree is granted upon satisfactory completion of the first year of study in Memphis. The requirement for a major is waived for those taking their fourth year at the University of Tennessee Health Science Center, Memphis. Students must complete the last 30 hours of credit in residence at the University of Tennessee, Knoxville, before enrolling in the College of Medicine. Admission to the College of Medicine is at the discretion of that college; admission to and successful completion of the program below does not assure admission to the College of Medicine. Although the Bachelor of Arts/Bachelor of Science is not required for admission to the College of Medicine, most students accepted into the study of medicine have the baccalaureate degree before admission. Therefore, pre-medical students are encouraged to plan to complete all requirements for the degree before enrolling in the College of Medicine.
Requirements for the Bachelor of Science
• Pre-Professional Programs Major • Pre-Medical
Concentration
First Year    Hours Credit
English 101*-102* ........................................... 6
1 Biology 130 ................................................. 4
2 Biology 140 ................................................. 4
Chemistry 120*-130* ....................................... 8
2 Mathematics* ............................................. 6-8
Electives ....................................................... 3
Second Year
Chemistry 350-360, 369 ................................... 8
Physics 221-222 ............................................. 8
3 Foreign Language Intermediate Level* ............ 6
4 Humanities* ............................................... 3
Non-US History* ........................................... 6
Communicating Orally (OC) course* ................. 3
Third Year
3 Humanities* (see Note 4) ............................... 3
Communicating through Writing (WC) course* ... 3
5 Social Sciences* .......................................... 6
6 Upper Level Distribution ................................ 6
7 Electives ..................................................... 0-10
Total 90 minimum

Fourth Year
Completion of one year at the University of Tennessee Health Science Center in Memphis.

Total 120

* Meets University General Education Requirement.
1 Pre-medical students who have previously completed Biology 101 and 102 may substitute this sequence for Biology 130.
2 Mathematics placement depends on high school courses and grades. ACT scores, the Mathematics placement exam, and BA/BS requirements. Math 130 or any calculus course is a prerequisite to physics. At least two courses must satisfy the University General Education Requirement in Quantitative Reasoning.
3 This plan assumes a student has had enough language background in high school to begin an intermediate language sequence at UTK.
4 BS students must complete a minimum of two courses from the three lists under the humanities requirement; not more than one course may be taken from List C. The two courses must satisfy the University General Education Requirement in Arts and Humanities.
5 BS students must complete a minimum of two courses from two departments. The two courses must satisfy the University General Education Requirement in Social Sciences.
6 BS students must complete one course from List A and one from List B.
7 Although not specifically required, Biology 240 and Microbiology 310-319 are recommended as preparation for the MCAT. Additional recommended courses include—BCMB 330-331, 401-402, 421, 440.

PRE-PHARMACY CONCENTRATION
The college offers three program options for preparing students for the study of pharmacy at UT Health Science Center, Memphis. The Doctor of Pharmacy (PharmD) degree is conferred by the College of Pharmacy upon completion of four years of professional study at Memphis after completing any of the three programs options. Bulletins describing the pre-pharmacy program options in detail may be obtained from Arts and Sciences Advising Services.

The three-year program leading to a Bachelor of Science degree with a major in pre-professional programs from the University of Tennessee, Knoxville, is based upon the program outlined below. In the three-year program, the student must complete at least 90 prescribed credit hours while enrolled in the College of Arts and Sciences, and the Bachelor of Science degree is granted upon satisfactory completion of the first year of study in Memphis. The requirement for a major is waived for those taking their fourth year at the University of Tennessee Health Science Center, Memphis. Students must complete the last 30 hours of credit in residence at the University of Tennessee, Knoxville, before enrolling in the College of Pharmacy. Admission to the College of Pharmacy is at the discretion of that college; admission to and successful completion of the program below does not assure admission to the College of Pharmacy.

Requirements for the Bachelor of Science
• Pre-Professional Programs Major • Pre-Pharmacy
Concentration
First Year    Hours Credit
English 101*-102* ........................................... 6
1 Biology 130 ................................................. 4
2 Biology 140 ................................................. 4
Chemistry 120*-130* ....................................... 8
2 Mathematics* ............................................. 6-8
Electives ..................................................... 3
Second Year
Chemistry 350-360 and 369 ................................ 8
Physics 221 .................................................. 4
Communication Studies 210* or 240* ................. 4
4 Humanities* ............................................... 3
5 Social Sciences* .......................................... 6
6 Non-U.S. History* ....................................... 6
7 Communicating through Writing (WC) course* .... 3
Total 90 minimum

Fourth Year
Completion of one year at the University of Tennessee Health Science Center in Memphis.

Total 120

* Meets University General Education Requirement.
1 Pre-pharmacy students who have previously completed Biology 101 and 102 may substitute this sequence for Biology 130.
2 Mathematics placement depends on high school courses and grades. ACT scores, the Mathematics placement exam, and BA/BS requirements. Mathematics 130 or any calculus course is a prerequisite to Physics. At least two courses must satisfy the University General Education Requirement in Quantitative Reasoning.
3 This plan assumes a student has had enough language background in high school to begin an intermediate language sequence at UTK.
4 BS students must complete a minimum of two courses from at least two departments chosen from the following list—Anthropology 130; Economics 201; Political Science 102; Psychology 110; Sociology 110, 120.
5 BS students must complete a minimum of two courses from the three lists under the humanities requirement; not more than one course may be taken from List C. The two courses must satisfy the University General Education Requirement in Arts and Humanities.
6 BS students must complete one course from List A and one from List B.
7 Microbiology 310 has a prerequisite of Biology 140 and a corequisite of Biology 240.

PRE-VETERINARY MEDICINE CONCENTRATION
The following program is designed for students who wish to pursue an arts and sciences degree while preparing for the study of veterinary medicine. Students in this program must complete at least 93 credit hours while enrolled in the College of Arts and Sciences, must satisfy the Basic Skills and Distribution requirements, and must complete the last 30 hours in residence at the University of Tennessee, Knoxville, before enrolling in the College of Veterinary Medicine. A departmental major is not required. Upon successful completion of the first year (two semesters) of the professional veterinary medicine curriculum, the Bachelor of Science degree will be conferred by the College of Arts and Sciences.

Admission to the College of Veterinary Medicine is at the discretion of the Admissions Committee of that College; admission
to and successful completion of this program does not assure admission to the College of Veterinary Medicine.

Requirements for the Bachelor of Science • Pre-Professional Programs Major • Pre-Veterinary Medicine Concentration

First Year

- English 101*–102* .......................... 6
- Chemistry 120*–130* ....................... 8
- Biology 130* .................................. 4
- Biology 140* .................................. 4
- Mathematics* ................................ 6-8
- Foreign Language – Intermediate Level Sequence* ..................... 6

Second Year

- Chemistry 350-360, 369 ........................ 8
- Physics 221-222 ............................... 8
- Biology 240 .................................... 8
- History ........................................ 6
- Social Science* ................................. 3
- Communicating Orally (OC) course * ......................... 3

Third Year

- Biochemistry and Cellular and Molecular Biology 401 and 402 .................. 8
- Social Science* ................................. 3
- Humanities* ................................... 6
- Upper Level Distribution ..................... 6
- Biology Elective .................................. 4
- Communicating through Writing (WC) course* ...................... 3

Fourth Year

- Completion of one year at the University of Tennessee College of Veterinary Medicine.  

- Total 120 minimum

DEPARTMENT OF ANTHROPOLOGY

http://web.utk.edu/~anthrop/

Andrew Kramer, Head

Professors

Bass, W.M., (Alumni Distinguished Service Professor), PhD ... Pennsylvania
Howell, B.J., PhD .................................. Kentucky
Jantz, R.L., PhD .................................. Kansas
Klippel, W.E., PhD ................................. Missouri
Konigsberg, L., PhD ............................... Northwestern
Logan, M.H., PhD ................................ Pennsylvania
Schoenfled, G.F., PhD .............................. Washington State
Simsek, J.F. (Distinguished Professor), PhD .................... State University of New York (Binghamton)

Associate Professors

Anderson, D.G., PhD ................................ Michigan
Kramer, A., PhD .................................. Michigan
Marks, M., PhD .................................. Tennessee

Assistant Professor

Harper, J.L., PhD .................................. Michigan

Research Director

Driskell, B.N., PhD .................................. Kentucky

Research Associate Director

Sherwood, S., PhD .................................. Tennessee

Research Associate Professor

Chapman, J. (Director, F.H. McClung Museum), PhD ............... North Carolina

Research Assistant Professor and Curator

Frankenberg, S., PhD .................................. Northwestern

Research Assistant Professors

Ahman, T.M., PhD .................................. Tennessee
Goodwin, C.M., PhD ............................... Boston
Herrmann, N.P., PhD ................................ Tennessee
Hollenbach, K.R., PhD .............................. North Carolina
Sichler, J.A., PhD .................................. Tennessee
Vass, A.A., PhD .................................. Tennessee

Lecturer and Coordinator, Forensic Center

Jantz, L.M., PhD .................................. Tennessee

Lecturers

Devlin, J.I., PhD .................................. Tennessee
Pendry, D.A., PhD .................................. Texas
Qirk, H.N., PhD .................................. Tennessee

Adjunct Professors

Bogard, J.S., PhD .................................. Texas (Austin)
Dunnell, R., PhD .................................. Yale
Harrison, F.V., PhD ................................ Stanford
McCormick, W.F., MD ............................. Tennessee
Smith, F.H., PhD .................................. Michigan
Stein, J.K., PhD .................................. Minnesota

Adjunct Associate Professors

Dessel, J.P., PhD .................................. Arizona
Goldberg, P., PhD .................................. Michigan
Sullivan, L.P., PhD .................................. Wisconsin (Milwaukee)

Adjunct Assistant Professors

Crites, G.D., PhD .................................. Tennessee
Dexter, J.P., PhD .................................. Arizona
Douglas, J.C., PhD .................................. Houston
Jacobson, J.A., PhD ................................ Tennessee
Klenk, R.M., PhD .................................. Washington
Lev-Tov, J., PhD .................................. Tennessee
Polhemus, R.R., PhD ............................... Tennessee
Simoes, S.A., PhD ................................ Tennessee
van de Moortel, A., PhD .......................... Bryn Mawr

Post-Doctoral Research Associate

Weinand, D.C., PhD .................................. Tennessee

Anthropology (literally the study of humans) is a broad and diverse field concerned with all aspects of the human condition – past, present and future. An undergraduate majoring in anthropology at the University of Tennessee, Knoxville, learns of this breadth and diversity by taking courses in cultural, biological and archaeological anthropology. The major is designed so that all students are trained in these primary subfields, but the curriculum also allows the student to concentrate in those aspects of anthropology that she/he finds most interesting. The undergraduate who earns a Bachelor of Arts with a major in anthropology from UT Knoxville is prepared to enter careers in a variety of fields such as health, education, government, law, social work, and human services. If the student is interested in a career as a professional anthropologist, graduate training is a necessity. The excellence of the faculty and the relevance of available courses in the department afford future anthropologists the undergraduate background necessary to pursue advanced degrees.

Progression Requirements

Progression into the anthropology major is based on performance in the three prerequisite courses – 110, 120, and 130. Students must maintain a grade point average of at least 3.0 for the three introductory courses with none of the three grades below a C. Upon satisfactory completion of the prerequisites, the student may apply for progression into the anthropology major by completing a formal application for progression in the Anthropology Department and including with that application an Academic His-
tory demonstrating satisfactory completion of the progression requirements. The Undergraduate Committee of the Anthropology Department will meet regularly to determine the status of these applications. Upon progression to the major, a department advisor will be assigned in consultation with the student.

ANTHROPOLOGY MAJOR

The anthropology major consists of 30 hours including 450 or 357 and 27 additional hours of upper-division coursework in anthropology. This course work shall be distributed as follows.

Archaeological method and theory
One course from 361, 362, 440, 464.

Archaeological area
One course from 360, 363, 462, 463.

Cultural area
One course from 310, 311, 312, 313, 315, 316, 319, 320, 322.

Cultural method and theory
One course from 410, 411, 412, 413, 414, 415, 416, 431.

Biological anthropology
Two courses from 480, 485, 490, 494, 495, 496.

Remaining hours
From any upper-division anthropology courses.

Students with senior standing are encouraged to substitute appropriate 500-level courses (with permission of the instructor of the course and approval of the department head) for any portion of the above.

Continuation in the anthropology major requires maintenance of a 2.5 GPA or better in all anthropology courses. Students failing to meet this standard will be notified in writing that they are on probation and their records will be reviewed. Those who continue in probationary status for two consecutive semesters will be dropped from the major.

HONORS CONCENTRATION

The Department of Anthropology offers honors seminars for juniors and seniors, leading to an honors concentration. The honors concentration consists of 357 and 457 plus 24 additional hours of upper-division coursework in anthropology distributed as specified above for the major.

Minor in Anthropology

Anthropology 110, 120, 130 are prerequisite to a minor in anthropology consisting of 15 hours of upper-division anthropology courses (chosen in consultation with an anthropology advisor).

SCHOOL OF ART

http://art.utk.edu
Paul Lee, Director
Suzanne Wright, Associate Director

Professors
Brake, M., MFA ......................................................... Yale
Goldstein, M.B., MFA .......................................... Nebraska
Habel, D.M., PhD .................................................. Michigan
Lee, B., MFA .......................................................... Yale
Lee, P., MFA ......................................................... Cranbrook
Leland, W.E., MFA .............................................. Tennessee
Lyons, B., MFA ...................................................... Arizona State
Magden, N., PhD .................................................. Case Western Reserve
Riesing, T.J., MFA .................................................. Nebraska
Staples, C., MFA ..................................................... Michigan State
Wilson, D., MFA ...................................................... Wisconsin
Yates, S.A., MFA ................................................... North Carolina (Greensboro)

Associate Professors
Broden, S., MFA . . . . . . . . . . . . . . . . . . . . . . . . New York State College of Ceramics at Alfred
Dewey, W., PhD .................................................. Indiana
Hiles, T.W., PhD .................................................... Pennsylvania State
Neff, A.L., PhD ....................................................... Pennsylvania
Jung, A., MFA ......................................................... Wisconsin
Wright, S., PhD ................................................... Stanford

Assistant Professors
Boylan, A.L., PhD .................................................... Rutgers
Brown, J., MFA ....................................................... Rhode Island School of Design
Lough, W., MFA ...................................................... Temple
Lowe, S., MGD .......................................................... North Carolina State
Martin, F., MFA .................................................... Cranbrook
Shmerler, D., MFA ................................................ Virginia Commonwealth
Sprecher, J.B., MFA ................................................ Iowa

The following core courses must be completed before students can progress into the program as majors and before further art classes may be taken.

- Art 101
- Art 103
- Art History 162, 172, 173, or 183 (choose one)

Those applying will be admitted into the program in rank order of cumulative average as space allows. The overall record will be evaluated for quality and seriousness of purpose. Excessive absences, withdrawals, incompletes or repeated courses may result in denial of progression. Progression into the School of Art does not guarantee progression into a chosen concentration. Progression into a concentration will follow successful completion of a concentration Portfolio Review.

BACHELOR OF FINE ARTS • STUDIO ART MAJOR

The Bachelor of Fine Arts with a major in studio art is a profession-oriented degree especially intended for those students planning careers or graduate study in the visual arts. All students seeking studio degrees (Bachelor of Arts and Bachelor of Fine Arts) must present and pass the appropriate Portfolio Review for their area of study in order to be admitted into advanced courses. Contact specific program area faculty for review of schedules and details. It should not be assumed that a high grade point average in the major itself assures passing Portfolio Review. The Portfolio Review is recommended in the sophomore year and is intended to provide students with an overview assessment of their potential for success in the intended area of study early enough to allow a student to make a program change should that be advisable. Before choosing a concentration, students should contact their intended area to see what options are offered in the event they do not pass Portfolio Review. All studio courses require 3 hours per week attendance for each credit hour earned. Completing the Bachelor of Fine Arts program may take more than eight semesters. Students are urged to seek departmental advisement each semester to ensure proper scheduling. Students seeking the Bachelor of Fine Arts should also consider pursuing a minor in art history.

Transfer students are advised that a minimum of 21 hours in studio courses, and 6 upper-division hours in art history, must be earned at the University of Tennessee, Knoxville. Transfer students must have a minimum overall GPA of 3.00 in art and art history courses and may be required to present a portfolio. Those students who have not taken any art courses must take the sequence of courses required of freshmen (Progression Requirements). Students should be cautioned that art courses taken at another institution may not apply toward their concentration. Art Design 252, Art Drawing 212, and Art Painting 214 must be taken at the University of Tennessee, Knoxville. Courses not accepted for application toward a concentration may be counted toward studio electives.

No grade below C in art courses may be applied to the Bachelor of Fine Arts major. A minimum of 42 credit hours, 300 level
or above, must be earned prior to graduation. Students may be accepted into advanced media concentrations in ceramics, drawing, painting, media arts, printmaking, sculpture, and watercolor after passing the appropriate portfolio course.

Major in Studio Art and Additional Courses in Art Education

The School of Art recommends the Bachelor of Fine Arts for those students pursuing licensure to teach art in schools K-12. These students must also contact the College of Education, Health, and Human Sciences for further requirements. Twelve-thirteen credit hours of art education courses may be used as studio electives for those pursuing the BFA and licensure to teach.

CERAMICS CONCENTRATION

Requirements for the Bachelor of Fine Arts • Studio Art Major • Ceramics Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art 101, 103</td>
<td>.6</td>
</tr>
<tr>
<td>Art 295</td>
<td>.3</td>
</tr>
<tr>
<td>Art History 172* and 173* and 162* or 183*</td>
<td>.9</td>
</tr>
<tr>
<td>Art History Electives</td>
<td>.6</td>
</tr>
</tbody>
</table>

One course from each of the following 6 areas:
- Art Ceramics, Art Drawing, Art Media Arts, Art Painting, Watercolor, Art Printmaking, and Art Sculpture

Concentration

| Ceramics 221 or 222                  | .3           |
| Art Ceramics Portfolio Review 320   | .0           |
| Ceramics 321, 322 (prerequisite for all 400-level courses) | .8 |
| Ceramics 421, 422                    | .12          |
| Approved Concentration Electives     | .9           |

9 hours from the following – Art Ceramics 424, 429; Art Drawing 212; Art Sculpture 241, 242, 243, 245, 246; Art Printmaking 262, 263; Art Painting 213, 214, 215

1Studio Electives

Additional hours in studio courses to be completed in the School of Art or our affiliated facility, Arrowmont School of Arts and Crafts. Students may also apply a maximum of 6 hours of approved studio courses from architecture, art education, computer science, journalism and electronic media, interior design, theatre.

General Curriculum (consult University General Education Requirement for appropriate choices within each category)

| English 101*, 102* or their equivalent | .6           |
| Quantitative Reasoning (2 courses)*   | .6           |
| Natural Sciences (2 courses; at least one with laboratory)* | .7 |
| Social Sciences (2 courses)*          | .6           |
| Cultures and Civilizations (2 courses)* | .6          |
| Communicating through Writing*        | 0-3          |
| Communicating Orally*                 | 0-3          |

Total 120-126

* Meets University General Education Requirement.

1 Students electing an additional major in art education and licensure to teach in schools K-12 may apply 13 hours in undergraduate art education courses.

DRAFTING CONCENTRATION

Requirements for the Bachelor of Fine Arts • Studio Art Major • Drawing Concentration

<table>
<thead>
<tr>
<th>Core</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art 101, 103</td>
<td>.6</td>
</tr>
<tr>
<td>Art 295</td>
<td>.3</td>
</tr>
<tr>
<td>Art History 172* and 173* and 162* or 183*</td>
<td>.9</td>
</tr>
<tr>
<td>Art History Electives</td>
<td>.6</td>
</tr>
</tbody>
</table>

One course from each of the following 6 areas – Art Ceramics, Art Drawing, Art Media Arts, Art Painting/Watercolor, Art Printmaking, and Art Sculpture

Concentration

| Art Drawing 212 (may be repeated)    | .3           |
| Art Drawing 312 (Portfolio Review)   | 0            |
| Art Drawing 311 (for two semesters)  | .8           |
| Art Drawing 411 (for two semesters)  | .12          |

Approved Concentration Electives:

9 hours from the following – Art Drawing 219/419 (maximum 6 hours); Art Painting 213, 214, 215, 216; Art Media Arts 231; Art Printmaking 262, 263

1Studio Electives

Additional hours in studio courses to be completed in the School of Art or our affiliated facility, Arrowmont School of Arts and Crafts. Students may also apply a maximum of 6 hours of approved studio courses from architecture, art education, computer science, journalism and electronic media, interior design, theatre.

General Curriculum (consult University General Education Requirement for appropriate choices within each category)

| English 101*, 102* or their equivalent | .6           |
| Quantitative Reasoning (2 courses)*   | .6           |
| Natural Sciences (2 courses; at least one with laboratory)* | .7 |
| Social Sciences (2 courses)*          | .6           |
| Cultures and Civilizations (2 courses)* | .6          |
| Communicating through Writing*        | 0-3          |
| Communicating Orally*                 | 0-3          |

Total 120-126

* Meets University General Education Requirement.

1 Students electing an additional major in art education and licensure to teach in schools K-12 may apply 13 hours in undergraduate art education courses.

MEDIA ARTS CONCENTRATION

Requirements for the Bachelor of Fine Arts • Studio Art Major • Media Arts Concentration

<table>
<thead>
<tr>
<th>Core</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art 101, 103</td>
<td>.6</td>
</tr>
<tr>
<td>Art 295</td>
<td>.3</td>
</tr>
<tr>
<td>Art History 172* and 173* and 162* or 183*</td>
<td>.9</td>
</tr>
<tr>
<td>Art History Electives</td>
<td>.6</td>
</tr>
</tbody>
</table>

One course from each of the following 5 areas – Art Ceramics, Art Drawing, Art Media Arts, Art Painting/Watercolor, Art Printmaking

Concentration

| Art Media Arts 330 (Portfolio Review) (Prerequisite to 300- and 400-level courses) | .0           |
| Art Media Arts 433                                                               | .3           |
| Art Media Arts 435 and/or 436                                                     | .8           |
| Art Media Arts photography courses (300 and 400 level)                            | .8           |
| Art Media Arts 450                                                               | .4           |

300- and 400-level electives in Media Arts

1Studio Electives

Additional hours in studio courses to be completed in the School of Art or our affiliated facility, Arrowmont School of Arts and Crafts. Students may also apply a maximum of 6 hours of approved studio courses from architecture, art education, computer science, journalism and electronic media, interior design, theatre.
General Curriculum (consult University General Education Requirement for appropriate choices within each category)

English 101*, 102* or their equivalent
Quantitative Reasoning (2 courses)*
Natural Sciences (2 courses; at least one with laboratory)*
Social Sciences (2 courses)*
Cultures and Civilizations (2 courses)*
Communicating through Writing*
Communicating Orally*

Total 120-126

* Meets University General Education Requirement.

1 Students electing an additional major in art education and licensure to teach in schools K-12 may apply 12 hours in undergraduate art education courses.

PAINTING CONCENTRATION

Requirements for the Bachelor of Fine Arts • Studio Art Major • Painting Concentration

Core

Art 101, 103
Art 295
Art History 172* and 173* and 162* or 183*
Art History Electives
One course from each of the following 6 areas – Art Ceramics, Art Drawing, Art Media Arts, Art Painting/Watercolor, Art Printmaking, and Art Sculpture

Concentration

Painting 214 (may be repeated)
Painting 313 (for two semesters)
Painting 413 (for two semesters)
Approved Concentration Electives:
9 hours from the following – Art Ceramics, Art Drawing, Art Media Arts, Art Painting/Watercolor, Art Printmaking, and Art Sculpture

1 Studio Electives

Additional hours in studio courses to be completed in the School of Art at our affiliated facility, Arrowmont School of Arts and Crafts. Students may also apply a maximum of 6 hours of approved studio courses from architecture, art education, computer science, journalism and electronic media, interior design or theatre.

General Curriculum (consult University General Education Requirement for appropriate choices within each category)

English 101*, 102* or their equivalent
Quantitative Reasoning (2 courses)*
Natural Sciences (2 courses; at least one with laboratory)*
Social Sciences (2 courses)*
Cultures and Civilizations (2 courses)*
Communicating through Writing*
Communicating Orally*

Total 120-126

* Meets University General Education Requirement.

1 Students electing an additional major in art education and licensure to teach in schools K-12 may apply 13 hours in undergraduate art education courses.

PRINTMAKING CONCENTRATION

Requirements for the Bachelor of Fine Arts • Studio Art Major • Printmaking Concentration

Core

Art 101, 103
Art 295
Art History 172* and 173* and 162* or 183*
Art History Electives
One course from each of the following 6 areas – Art Ceramics, Art Drawing, Art Media Arts, Art Painting/Watercolor, Art Printmaking, and Art Sculpture

Concentration

Printmaking 200-level course
Printmaking 360 (Portfolio Review)
Printmaking 300- and 400-level courses

1 Studio Electives

Additional hours in studio courses to be completed in the School of Art at our affiliated facility, Arrowmont School of Arts and Crafts. Students may also apply a maximum of 6 hours of approved studio courses from architecture, art education, computer science, journalism and electronic media, interior design or theatre.

General Curriculum (consult University General Education Requirement for appropriate choices within each category)

English 101*, 102* or their equivalent
Quantitative Reasoning (2 courses)*
Natural Sciences (2 courses; at least one with laboratory)*
Social Sciences (2 courses)*
Cultures and Civilizations (2 courses)*
Communicating through Writing*
Communicating Orally*

Total 120-126

* Meets University General Education Requirement.

1 Students electing an additional major in art education and licensure to teach in schools K-12 may apply 13 hours in undergraduate art education courses.

SCULPTURE CONCENTRATION

Requirements for the Bachelor of Fine Arts • Studio Art Major • Sculpture Concentration

Core

Art 101, 103
Art 295
Art History 172* and 173 and 162* or 183*
Art History Electives
One course from each of the following 6 areas – Art Ceramics, Art Drawing, Art Media Arts, Art Painting/Watercolor, Art Printmaking, and Art Sculpture

Concentration

Sculpture 200-level course
Sculpture 340 (Portfolio Review)
Sculpture 300- and 400-level courses

1 Studio Electives

Additional hours in studio courses to be completed in the School of Art at our affiliated facility, Arrowmont School of Arts and Crafts. Students may also apply a maximum of 6 hours of approved studio courses from architecture, art education, computer science, journalism and electronic media, interior design or theatre.

General Curriculum (consult University General Education Requirement for appropriate choices within each category)

English 101*, 102* or their equivalent
Quantitative Reasoning (2 courses)*
Natural Sciences (2 courses; at least one with laboratory)*
Social Sciences (2 courses)*
Cultures and Civilizations (2 courses)*
Communicating through Writing*
Communicating Orally*

Total 120-126

* Meets University General Education Requirement.

1 Students electing an additional major in art education and licensure to teach in schools K-12 may apply 13 hours in undergraduate art education courses.

WATERCOLOR CONCENTRATION

Requirements for the Bachelor of Fine Arts • Studio Art Major • Watercolor Concentration

Core

Art 101, 103
Art 295
Art History 172* and 173* and 162* or 183*
Art History Electives
One course from each of the following 6 areas – Art Ceramics, Art Drawing, Art Media Arts, Art Painting/Watercolor, Art Printmaking, and Art Sculpture

Total 120-126

* Meets University General Education Requirement.

1 Students electing an additional major in art education and licensure to teach in schools K-12 may apply 13 hours in undergraduate art education courses.
BACHELOR OF FINE ARTS • GRAPHIC DESIGN MAJOR

The graphic design major is specifically designed to provide the basic visual education for students who wish to pursue careers in graphic design-related fields such as advertising, art direction, three-dimensional design, publications, or electronic media.

Transfer students are advised that a minimum of 21 hours in studio courses and 6 upper-division hours in art history must be earned at the University of Tennessee, Knoxville, as well as Art Design 252. Transfer students who expect to enroll in 300 (junior level) courses must present a portfolio of 10-15 works, the majority of which must be in graphic design.

No grade below C in art courses may be applied to the Bachelor of Fine Arts degree. A minimum of 42 credit hours, 300 level or above, must be earned prior to graduation.

A minimum of 120 hours are required. Students are advised that courses in graphic design must be taken in sequence, and that successful completion of Portfolio Review (350) is prerequisite to all upper-division courses.

Students must complete 351 and 356 with a grade of C or better by the end of the second fall semester following successful completion of Portfolio Review (350). If 351 and 356 are not successfully completed in this time, the student must resubmit a portfolio to regain entrance into the junior program. Resubmission of the portfolio must occur during the scheduled spring Portfolio Review.

Requirements for the Bachelor of Fine Arts • Graphic Design Major

Art Core

Art 101, 103, 295 ........................................................................ 3
Art History 172*, 173* ................................................................ 6
Art Drawing 211 ....................................................................... 3

Graphic Design

Art Graphic Design 251, 252, 351, 352, 356, 451, 452, 455 (in sequence) .................................................................. 24
Art Graphic Design 350 (Portfolio Review) (Satisfactory/No Credit grading) ................................................................. 0
Art Graphic Design 444 (maximum 6 hours) and/or 456 ............... 8

Total 120-126

* Meets University General Education Requirement.
1 Students electing an additional major in art education and licensure to teach in schools K-12 may apply 13 hours in undergraduate art education courses.

Required Design and Professional

Art Graphic Design 405 ................................................................ 3
Art Graphic Design 459 ................................................................ 3
Art Graphic Design 450 ................................................................ 3
Art Graphic Design 254, 256, 259, 354, 396, 405, 453, 454, 459 (choose one) ................................................................. 3

Required Studio

Art Drawing 212; Art Painting 213 (or 215); Art Media Arts 231 ...................................................................................... 9

Art History

Electives (one course must be writing emphasis) ............................... 6

Studio Electives

Students must choose a total of 9 hours from a minimum of two categories – Art Ceramics, Art Drawing, Art Media Arts, Art Painting, Art Printmaking, Art Sculpture ............................................................... 9

Art History courses numbered 300 and above ................................ 18

One course in four of the following areas.

Medieval/Early Renaissance

Art History 425, 431, 441, 451

Renaissance/Baroque

Art History 442, 452, 453, 454

American

Art History 471, 472, 473, 483

19th/20th Century

Art History 403, 472, 474, 475, 476; Art Media Arts 433

Non-Western

Art History 411, 415, 416, 419, 461, 462, 463, 464

Six Art History elective hours or from courses in the Departments of Classics, Religious Studies, or School of Architecture in consultation with departmental advisor.

Art 481 ...................................................................................... 3
Art History 376 .......................................................................... 3
Studio courses numbered 200 and above ...................................... 3

Total 36

undergraduate work in art history is enhanced by knowledge of at least one foreign language and by additional studio art experience. Graduate work normally requires reading knowledge of German, French, and any other language appropriate to an area specialization.

Students anticipating possible careers in the museum or gallery field are advised that elective hours in Art 482, Museum Studies II, should be considered.

Minor in Art History

Prerequisites

Art History 172, 173, and 162 or 183 (or their Honors equivalents) with a grade of C or better .............................................. 9

Minor

Art History courses numbered 200 and above ................................ 15

Total 24

* Meets University General Education Requirement.

ART HISTORY MAJOR

Requirements for the Bachelor of Arts • Art History Major

Prerequisites

Hours Credit

Art History 172, 173, and 162 or 183 (or their Honors equivalents) with a grade of C or better ......................................................... 9

Major

Art History courses numbered 300 and above ................................ 18

One course in four of the following areas.

Medieval/Early Renaissance

Art History 425, 431, 441, 451

Renaissance/Baroque

Art History 442, 452, 453, 454

American

Art History 471, 472, 473, 483

19th/20th Century

Art History 403, 472, 474, 475, 476; Art Media Arts 433

Total 36

Non-Western

Art History 411, 415, 416, 419, 461, 462, 463, 464

Six Art History elective hours or from courses in the Departments of Classics, Religious Studies, or School of Architecture in consultation with departmental advisor.

Art 481 ...................................................................................... 3
Art History 376 .......................................................................... 3
Studio courses numbered 200 and above ...................................... 3

Total 36

Undergraduate work in art history is enhanced by knowledge of at least one foreign language and by additional studio art experience. Graduate work normally requires reading knowledge of German, French, and any other language appropriate to an area specialization.

Students anticipating possible careers in the museum or gallery field are advised that elective hours in Art 482, Museum Studies II, should be considered.

Minor in Art History

Prerequisites

Hours Credit

Art History 172, 173, and 162 or 183 (or their Honors equivalents) with a grade of C or better ......................................................... 9

Minor

Art History courses numbered 200 and above ................................ 15

Total 24
STUDIO ART MAJOR

Requirements for the Bachelor of Arts • Studio Art Major

Prerequisites

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art 101, 103, 295</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Art History 162, 172, 173, 183 (any 2 with a grade of C or better) and 3 additional hours</td>
<td>24</td>
<td></td>
</tr>
</tbody>
</table>

Major

Studio courses numbered 200 and above, including a minimum of 15 hours in 300-400 level courses.

Total 42

Minor in Studio Art

Prerequisites

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art 101, 103, 295</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Art History 172, 173, 162, 183 (any 2 of which must be 172 or 173)</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

Minor

Studio courses which include a minimum of 8 additional upper-division hours.

Total 30

DEPARTMENT OF AUDIOLOGY AND SPEECH PATHOLOGY

http://web.utk.edu/~asweb/

Isa Schwarz, Head

Professor

Schwarz, I., PhD ..................................................... Oregon

Associate Professors

Erickson, H., MA .................................................. Southern California

Hedrick, M., PhD .................................................. Vanderbilt

Swanson, L., PhD .................................................. Purdue

Thelin, J., PhD .................................................. Iowa

Assistant Professors

Flipsen, P., PhD .................................................. Wisconsin

Harkrider, A., PhD .................................................. Texas

Horton-Ikard, R., PhD ............................................. Wisconsin

Karow, C., PhD .................................................. Texas

Munoz, M., PhD .................................................. Texas

Plyer, P., PhD .................................................. Tennessee

Saltuklaroglu, T., PhD ........................................... East Carolina

Von Hapsburg, D., PhD ........................................... Texas

Instructor

Singletary, T., MS ................................................. Colorado State

Clinical Director

Michael A., PhD .................................................. Vanderbilt

Clinical Faculty

Arp, D., MA ....................................................... Tennessee

Barnes, V., MA ..................................................... Tennessee

Beeler, J., MA ..................................................... Tennessee

Buehler, V., MA .................................................... Tennessee

Campbell, J., AuD ............................................... Arizona School of Health Sciences

Cutler, M., PhD ................................................... Georgia

Davidson, M., MA .................................................. Tennessee

DeGennaro, A., MA ............................................... Case Western

Donels, E., MA ..................................................... Tennessee

Gehrelin, B., MA ................................................... Washington (St. Louis)

Gibson, K., MA .................................................... Arizona State

Humphrey, E., AuD ................................................ Tennessee

Hume, S., PhD ..................................................... Tennessee

Jenkins, K., MA ................................................... Tennessee

Mintz, B., MA ...................................................... Penn State

Noss, E., MA ....................................................... Tennessee

Pemberton, S., MA ................................................ Tennessee

Plyer, E., AuD ...................................................... Arizona School of Health Sciences

Powers, H., MA ..................................................... Tennessee

Schay, N., AuD ..................................................... Tennessee

Seafoss, M., MA ..................................................... Tennessee

Sheridan, C., MA .................................................... Tennessee

Thomason, T., MA ................................................ Tennessee

Valentine, D., PhD ................................................ Tennessee

Vantrease, C., MA ................................................ Tennessee

Vaughn, T., MS ..................................................... Eastern Kentucky

Webb, P., MEd ...................................................... Florida

Yeager, K., AuD ................................................... Tennessee

The Department of Audiology and Speech Pathology offers course work in the scientific study of human communication sciences and disorders. The two undergraduate majors (audiology and speech pathology) are preparatory to graduate work and to professional certification in some aspect of speech, language, and hearing disorders. The master's degree or Doctor of Audiology is required for professional certificates and employment positions. Information about the audiology and speech pathology programs may be obtained from the departmental office, South Stadium Hall, and students are strongly encouraged to consult with the undergraduate advisor in the department as early as possible in their programs. Suggested elective courses for students not majoring in audiology or speech pathology include 300, 302, 303, 305, 306, 320, and 473.

Applicants for enrollment in clinical practice must submit an application to the departmental Clinical Director. Requirements for enrollment in practicum courses (434 for speech pathology or 445 for audiology) include a minimum cumulative GPA of 2.7 (or 3.0 in the last 30 hours of enrollments), a minimum of C in all courses taken within the department, successful completion of 433, and a minimum GPA of 2.75 within the major.

Students who fail to satisfy the above prerequisites for clinical practicum experience may graduate with a degree from the department, but will not be recommended for graduate study at the University of Tennessee, Knoxville. Requests for exceptions to this rule may be submitted to the departmental Admissions Committee.

Additional requirements for professional certification in audiology and speech pathology include at least 6 semester hours in behavioral and/or social sciences which pertain to the understanding of normal/abnormal behavior and at least one course in each of the following areas: biological sciences, physical sciences, and mathematics. Students majoring in both audiology and speech pathology are strongly encouraged to consult with the department undergraduate advisor before selecting elective courses.

AUDIOLOGY MAJOR

Admission to the major requires a minimum cumulative GPA of 3.0 after completion of at least 60 credit hours. Admission to the major does not guarantee admission to the graduate program.

The audiology major consists of 31 hours in audiology and speech pathology courses including 300, 302, 303, 305, 306, 320, 433, 435, 461, 473, and 494.

SPEECH PATHOLOGY MAJOR

Admission to the major requires a minimum cumulative GPA of 3.0 after completion of at least 60 credit hours. Admission to the major does not guarantee admission to the graduate program.

The speech pathology major consists of 34 hours including audiology and speech pathology 300, 302, 303, 305, 306, 320, 433, 435, 461, 473, and 494; and one course from the following: Linguistics 371, 372, 411, 425, 429, 431, 435, 471, 472, 474, 475, 476, or 477.
DEPARTMENT OF BIOCHEMISTRY AND CELLULAR AND MOLECULAR BIOLOGY

http://web.bio.utk.edu/bcmb/

Bruce D. McKee, Head

Professors

Ganguly, R., PhD .................................................. Nebraska
Hickok, L., PhD .................................................... Massachusetts
Howell, E., PhD .................................................... Lehigh
Joy, D. (Distinguished Scientist), DPhil ............................. Oxford (UK)
Koontz, J., PhD ..................................................... Kentucky
McKee, B., PhD ..................................................... Michigan State
Mullin, B., PhD ..................................................... North Carolina State
Peterson, C., PhD ................................................... Louisiana State
Roberts, D., PhD .................................................... California (Davis)
Serpersu, E., PhD ................................................... Hatecepe

Associate Professors

Bruce, B., PhD ...................................................... California (Berkeley)
Dealwis, C., PhD ................................................... London
Hall, J., PhD ......................................................... Illinois
Prosser, R., PhD ..................................................... Illinois

Assistant Professors

Fernandez, E., PhD ................................................ Loyola
Guo, H., PhD ......................................................... Harvard
Jain, N., PhD ......................................................... Brandeis
Kilazono, A., PhD ................................................... Nagaasaki (Japan)
Labrador, M., PhD ................................................... Madrid (Spain)
Nebenführ, A., PhD ................................................ Oregon State
Park, J., PhD ........................................................ Texas
Venkatachalam, S., PhD .............................................. Ohio State
don Ami, A., PhD .................................................... East Anglia (UK)

Adjunct and Research Faculty

Allison, D., MS ....................................................... Tennessee
Geoffroy, S., PhD ................................................... Manchester
Hartman, F., PhD ..................................................... Tennessee
Klebig, M., PhD ...................................................... Tennessee
Liu, Yie, PhD ........................................................ Sweden
Mazur, P., PhD ......................................................... Harvard
O’Neill, H., PhD ..................................................... Dublin (Ireland)
Richhik, G., PhD .................................................... Duke
Wetzal, R., PhD ..................................................... California (Berkeley)

Biochemistry, cell biology, and molecular biology study the function of cells and organisms at the molecular level. The concentration includes the study of the structure and function of proteins, lipids, carbohydrates, DNA and RNA, as well as how these and other molecules control cellular and organismal function. The curriculum prepares students for a variety of careers in biological research, biotechnology, the health professions or education.

Students wishing to emphasize study in this area elect to major in biological sciences with a concentration in biochemistry and cellular and molecular biology. See the description of the major and concentration under Division of Biology for requirements.

DIVISION OF BIOLOGY

http://web.bio.utk.edu/division/

John Koontz, Interim Director

Interim Coordinator

Brewton, R., PhD .................................................. Tennessee

Lecturer

Guffey, S., PhD ..................................................... Tennessee

The Division of Biology consists of the following departments: Biochemistry and Cellular and Molecular Biology (BCMB), Ecology and Evolutionary Biology (EEB), and Microbiology. Each offers a separate concentration within a common Bachelor of Science major, biological sciences, followed by the concentration name. (Honors options are described after each concentration.)

BIOLOGICAL SCIENCES MAJOR

The biological sciences major offers concentrations in: biochemistry and cellular and molecular biology; ecology and evolutionary biology; microbiology; and plant biology. An honors option is available in all four concentrations.

Prerequisites to all Concentrations

Chemistry 120-130; Physics 221-222; Mathematics 141-142 or 151-152; Biology 111-112 or 130, Biology 140-240-250.

Progression Requirements

Students may declare a biological sciences major after completing the prerequisites Chemistry 120-130, and Biology 111-112 or 130 courses with at least a 2.5 GPA in those courses. A cumulative 2.5 GPA is required to declare and to continue in the major.

Students wishing to declare a major in biological sciences will be assigned a faculty advisor in one of the biological sciences departments in consultation with the student. Declaration of a biological sciences major should occur as soon as the student decides on this course of study, but not later than three semesters before the expected graduation date in order to ensure that requirements can be met in a timely manner.

BIOCHEMISTRY AND CELLULAR AND MOLECULAR BIOLOGY CONCENTRATION

The concentration consists of 32 hours including Chemistry 350-360-369, Biochemistry and Cellular and Molecular Biology 401-402, and

- At least 16 additional credit hours selected from biochemistry and cellular and molecular biology courses numbered 300 or above (except Biochemistry and Cellular and Molecular Biology 310, 457) or from the following courses in other departments: Microbiology 310-319, 410, 419, 420-429, 430, 440; Ecology and Evolutionary Biology 350, 360, 460.
- At least two of the 16 credit hours must be selected from the following laboratory courses: Biochemistry and Cellular and Molecular Biology 403, 416, 419, 429 and 452, and Biology 401.
- At least three of the 16 credit hours must be selected from the following physiology courses: Biochemistry and Cellular and Molecular Biology 321, 440, and Microbiology 310. No more than 9 of the 16 credit hours may be in non-Biochemistry and Cellular and Molecular Biology courses.

Honors Option

An honors option is offered to students with a cumulative GPA in biological sciences prerequisite courses of 3.5 or above and who have completed Biology 130-140-240-250. The honors option also requires a substantive research project carried out under the supervision of a biochemistry and cellular and molecular biology faculty member and a thesis describing the results of that project. The thesis must be approved by the faculty supervisor.

ECOLOGY AND EVOLUTIONARY BIOLOGY CONCENTRATION

The concentration consists of 33 hours.

- Chemistry 350.

While not required, Chemistry 360-369 is recommended for students that plan to pursue medical professions and the following disciplines within ecology and evolutionary biology: physiological ecology, chemical ecology, environmental toxicology and molecular evolution and systematics. Chemistry 360-369 can be applied to the Ecology and Evolutionary Biology upper-division requirements and are listed under the Physiology/Chemical Ecology category below.
• Quantitative Requirement – Statistics 201 or Statistics 251 and one course from the following (note prerequisites in parentheses): Mathematics 231 (Prereq: Mathematics 141-142); Mathematics 251 (Prereq: Mathematics 141-142); Mathematics 405 (Prereq: Mathematics 141-142 or 151-152); Statistics 320 (Prereq: Statistics 201); Statistics 330 (Prereq: Statistics 201). Mathematics 141-142 or 151-152 can be used to satisfy Ecology and Evolutionary Biology requirements. However, Mathematics 141-142 is recommended for students with a strong interest in quantitative ecology and is prerequisite to several courses that satisfy the Ecology and Evolutionary Biology Quantitative Requirement.

• Upper-Division courses – A total of 24 additional hours is required at the 300 level or above to include at least 15 hours from Ecology and Evolutionary Biology, and at least one course from each of the following categories. Evolution – Ecology and Evolutionary Biology 410, 460, 465*, 495*. Ecology – Ecology and Evolutionary Biology 433*, 446*, 470*, 484; Microbiology 470. Organismal Biology – Ecology and Evolutionary Biology 330, 360*, 380*, 414, 450, 459*, 461*, 474*. Physiology/Chemical Ecology – Biochemistry and Cellular and Molecular Biology 310, 321, 415, 416*, 419*, 440; Chemistry 360, 369*; Microbiology 310, 319*. *Courses with lab or field component.

• The remaining hours for the ecology and evolutionary biology concentration can include any of the remaining ecology and evolution biology courses on the above lists, other upper-division ecology and evolutionary biology courses, or appropriate upper-division courses offered by the following departments: Anthropology; Earth and Planetary Sciences; Forestry, Wildlife and Fisheries; Geography; Microbiology; Plant Sciences. A list of approved appropriate courses may be obtained from the office of either the Division of Biology or Ecology and Evolutionary Biology or from the Department of Ecology and Evolutionary Biology’s Web page. Other courses, related to the student’s determined interests, may be approved by petition to the department and the division. Courses applied to the major must include at least 4 hours at the 400-level and one laboratory or field course.

Honors Option

Requirements for the honors option are
- Completion of requirements for the biological sciences major – ecology and evolutionary biology concentration.
- A GPA of 3.5 in all the 300-level and above courses from the concentration and an overall GPA of 3.2.
- A minimum of 4 hours of Ecology and Evolutionary Biology 400, Undergraduate Research, during the junior and senior years.
- Ecology and Evolutionary Biology 407, Senior Thesis.
- Ecology and Evolutionary Biology 490, Undergraduate Seminar.

MICROBIOLOGY CONCENTRATION
The concentration consists of 34 hours including Chemistry 350-360-369, Biochemistry and Cellular and Molecular Biology 401, Microbiology 310-319, 320-329, and 12 additional hours of 400-level microbiology courses.

Honors Option
An honors option is offered to selected students who have completed the required 300-level microbiology courses with a minimum grade point average of 3.5 in microbiology courses and 3.2 for all courses. In addition to these 300-level courses, an honors option requires successful completion of 15 additional hours of 400-level microbiology courses, including 401 and 402.

PLANT BIOLOGY CONCENTRATION
The plant biology concentration consists of 29-34 hours including
- Chemistry 350-360-369 or 350, 310-319 or 310-319 and Biochemistry and Cellular and Molecular Biology 310.
- Biochemistry and Cellular and Molecular Biology 321; Ecology and Evolutionary Biology 330, 400 (1-4 hours), 410, 490 (1-2 hours); plus 9 additional hours of other upper-division courses offered by life science departments (except Biochemistry and Cellular and Molecular Biology 306, Ecology and Evolutionary Biology 304, 309).

A list of approved courses from other life science departments is available in the Division of Biology office.

Honors Option
Requirements for an honors option are
- A GPA of 3.5 in all the 300-level and above courses from the concentration and an overall GPA of 3.2.
- A minimum of 4 hours of Ecology and Evolutionary Biology 400 (undergraduate research) during the junior and senior year.
- A senior thesis that is acceptable to the student's committee.

Students interested in pursuing an honors option should contact the Division of Biology office for details.

Minor in Biological Sciences
A minor in the Biological Sciences consists of 16 hours. Prerequisites are Biology 111-112 or 130, 140; and Chemistry 120-130. Requirements are Biology 240 and 250; and at least 8 hours chosen from 300- and 400-level courses in Biochemistry, Cellular and Molecular Biology; Ecology and Evolutionary Biology; Physiology/Chemical Ecology. In meeting the upper-division minimum requirement not more than 6 hours may be credited from any one biological science department, and not more than 3 hours of undergraduate research may be credited.

DEPARTMENT OF CHEMISTRY
http://www.chem.utk.edu
Craig E. Barnes, Interim Head
Professors
Adcock, J.L., PhD .................................Texas
Baker, D.C., PhD .................................Ohio State
Barnes, C.E., PhD ...............................Stanford
Bartmess, J.E., PhD .............................Northwestern
Compton, R.N., PhD ..........................Tennessee
Cook, K.D., PhD .................................Wisconsin
Feigert, C.S., PhD ...............................Colorado
Guiochon, G.A. (Distinguished Scientist, Science Alliance Center of Excellence), PhD ........................Université de Paris (France)
Kabalka G.W. (Robert H. Cole Professor, Alumni Distinguished Service Professor), PhD ........................Purdue
Kovac, J.D., PhD .................................Yale
Larese, R.J., PhD .................................Wesleyan
Magid, L.J., PhD .................................Tennessee
Magid, R.M., PhD ...............................Yale
Mays, J.W. (Distinguished Scientist, Science Alliance Center of Excellence), PhD ........................Akron
Pagni, R.M., PhD .................................Wisconsin
Schweitzer, G.K. (Alumni Distinguished Service Professor), PhD ........................Illinois
Sepaniak, M.J., PhD .............................Iowa State
Williams, T.F. (Alumni Distinguished Service Professor), PhD ........................London (UK)
Woods, III, C., (Vice Chancellor for Research) PhD ........................North Carolina State
Xue, Z., PhD .................................UCLA

Associate Professors
Adamson, M.D., PhD .............................Massachusetts
Barnes, C.E., PhD .................................Stanford
Bartmess, J.E., PhD .............................Northwestern
Cook, R.N., PhD .................................Tennessee
Feng, L., PhD .................................Wisconsin
Feigert, C.S., PhD ...............................Colorado
Guiochon, G.A. (Distinguished Scientist, Science Alliance Center of Excellence), PhD ........................Université de Paris (France)
Kabalka G.W. (Robert H. Cole Professor, Alumni Distinguished Service Professor), PhD ........................Purdue
Kovac, J.D., PhD .................................Yale
Larese, R.J., PhD .................................Wesleyan
Magid, L.J., PhD .................................Tennessee
Magid, R.M., PhD ...............................Yale
Mays, J.W. (Distinguished Scientist, Science Alliance Center of Excellence), PhD ........................Akron
Pagni, R.M., PhD .................................Wisconsin
Schweitzer, G.K. (Alumni Distinguished Service Professor), PhD ........................Illinois
Sepaniak, M.J., PhD .............................Iowa State
Williams, T.F. (Alumni Distinguished Service Professor), PhD ........................London (UK)
Woods, III, C., (Vice Chancellor for Research) PhD ........................North Carolina State
Xue, Z., PhD .................................UCLA

Assistant Professors
Adamson, M.D., PhD .............................Massachusetts
Barnes, C.E., PhD .................................Stanford
Bartmess, J.E., PhD .............................Northwestern
Cook, R.N., PhD .................................Tennessee
Feng, L., PhD .................................Wisconsin
Feigert, C.S., PhD ...............................Colorado
Guiochon, G.A. (Distinguished Scientist, Science Alliance Center of Excellence), PhD ........................Université de Paris (France)
Kabalka G.W. (Robert H. Cole Professor, Alumni Distinguished Service Professor), PhD ........................Purdue
Kovac, J.D., PhD .................................Yale
Larese, R.J., PhD .................................Wesleyan
Magid, L.J., PhD .................................Tennessee
Magid, R.M., PhD ...............................Yale
Mays, J.W. (Distinguished Scientist, Science Alliance Center of Excellence), PhD ........................Akron
Pagni, R.M., PhD .................................Wisconsin
Schweitzer, G.K. (Alumni Distinguished Service Professor), PhD ........................Illinois
Sepaniak, M.J., PhD .............................Iowa State
Williams, T.F. (Alumni Distinguished Service Professor), PhD ........................London (UK)
Woods, III, C., (Vice Chancellor for Research) PhD ........................North Carolina State
Xue, Z., PhD .................................UCLA

Schell, F.M., PhD ...............................Indiana
The Department of Chemistry presents to the next generation of chemists and chemically literate citizens an integrated program of teaching and research that will prepare them to respond responsibly to current and future national needs. To satisfy our diverse clientele, the educational program is continually improved and includes research, classroom, and laboratory activities. In addition, we endeavor to maintain local responsibilities in support of the university’s mission for public service.

Students who desire to major in chemistry may select from either of two courses of study – Bachelor of Science or Bachelor of Science in Chemistry.

Placement in General Chemistry Sequences

The sequences which meet all of the requirements of a year of general chemistry and which serve as prerequisite for upper-division courses are 120-130 and 128-138; chemistry majors are strongly urged to take the latter sequence. Courses 100 and 110 emphasize organic and biochemistry, and may not be used as prerequisite for other chemistry courses. Chemistry 150 and 160 are designed to increase the chemistry literacy and consumer knowledge of students and may not be used as prerequisites for any other chemistry course.

It is possible to move from one sequence to another if permission for substitution is obtained in advance. For example, a student who finds a need to complete the 120-130 series after having completed 100 may substitute 100 for 120 with approval of the Department of Chemistry and may then take 130. Credit may be received for only one of the courses 100, 120, or 128.

In any chemistry course above the freshman level which has Chemistry 130 as a prerequisite, 110 may be used as a prerequisite with approval of the Department of Chemistry.

Chemistry 128-138 is an honors course designed for the student who has already made considerable progress in science. Class size is limited to promote faculty-student interaction. Selection is based on ACT scores, high school chemistry grade, and, if necessary, performance on a placement examination to be given during the first class meeting. A student receiving a passing grade below B in 128 will complete the year’s work by taking 130.

Beginning students who have had high school chemistry and who have had additional experience (e.g. summer institute study, special research projects, home laboratory) are invited to apply during the summer to the head of the department for permission to take a proficiency examination in one or more semesters of general chemistry. If a satisfactory grade is made, credit will be allowed for the semester (or course) for which the exam was taken. The Department of Chemistry gives credit in general chemistry to students who present satisfactory scores on the Chemistry Advanced Placement Examination.

Cooperative Program

A cooperative program is available to students who are chemistry majors. After the freshman year, the student alternates a semester in school with a semester in a job in the chemical industry. The program normally requires five years and involves a total of four work semesters and eight school semesters. Students are required to have at least a 2.5 average to enter and remain in the program. Some opportunity exists for students to enter the program later than the end of the freshman year. Interested students should make application to the head of the department at least one semester in advance of the beginning of the first work period. Further information will be supplied on request.

BACHELOR OF SCIENCE IN CHEMISTRY

• CHEMISTRY MAJOR

The Bachelor of Science in Chemistry is approved by the Committee on Professional Training of the American Chemical Society. It is designed to train students to go directly into positions in the chemical industry or to enter graduate study leading to positions in research and college teaching. A student in the Bachelor of Science in Chemistry program should, at the earliest opportunity, ask the Arts and Sciences Advising Center for assignment of a faculty advisor in the Department of Chemistry. For further information, contact the Head of Department of Chemistry, 552 Buehler Hall.

Requirements for the Bachelor of Science in Chemistry

• Chemistry Major

Although not reflected in the showcase, students are required to meet the University General Education Requirement as stated in this catalog. Consult the College of Arts and Sciences Advising Services for updated information.

First Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Chemistry 120-130 or (preferably) 128-138</td>
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<tr>
<td>Mathematics 141-142</td>
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<tr>
<td>English Composition</td>
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<td>¹Foreign Language (intermediate level sequence)</td>
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<td>²Distribution</td>
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Second Year

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<tr>
<td>Chemistry 240</td>
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<tr>
<td>Chemistry 230</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry 350-360</td>
<td>6</td>
</tr>
<tr>
<td>Chemistry 369</td>
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<tr>
<td>Mathematics 241 and either 231 or 251</td>
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</tr>
<tr>
<td>Physics 135-136 or 137-138</td>
<td>8-10</td>
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<td>²Distribution</td>
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Third Year

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<tr>
<td>Chemistry 319-329</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry 473-483</td>
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<tr>
<td>Chemistry 479-489</td>
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<tr>
<td>²Distribution</td>
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<tr>
<td>³Electives</td>
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Fourth Year

<table>
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<td>Chemistry 400</td>
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<tr>
<td>Biochemistry and Cellular and Molecular Biology 401</td>
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<td>⁴Chemistry Electives</td>
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<tr>
<td>²Distribution</td>
<td>9</td>
</tr>
<tr>
<td>³Electives</td>
<td>9</td>
</tr>
</tbody>
</table>

Total 126-132

1 Preferably chosen from German, French, Russian or Japanese; the College of Arts and Sciences requires that a student demonstrate intermediate-level competence in whatever foreign language is chosen.
2 The Distribution requirements of the College of Arts and Sciences are satisfied by taking: Non-U. S. History (6 hours), Social Science (6 hours), Humanities (6 hours), and Upper Level Distribution (3 hours in U.S. Studies, and 3 hours in Foreign Studies). The number of credit hours shown in each year of the curriculum are merely intended as guidelines.
3 It is recommended that a portion of these elective hours be applied to advanced courses in biochemistry and cellular and molecular biology, mathematics, physics, or chemical, metallurgical, and polymer engineering.
4 To be chosen from Chemistry 400, 401, 408, 420, 450, and 490.
BACHELOR OF SCIENCE • CHEMISTRY MAJOR

The Bachelor of Science degree is available to students who desire a more flexible program. Prerequisites to the major are Chemistry 120-130 or 128-138 and Mathematics 141-142 or 151-152. Corequisites to the major are Physics 221-222, 135-136, or 137-138.

The major consists of Chemistry 240, 310, 319, 350-360, 369, 471-481 or 473-483, 479 and 10 hours of additional work in chemistry numbered above 200 that includes at least one laboratory course or lecture/laboratory course; up to 4 hours of Biochemistry and Cellular and Molecular Biology 401-402 or Geology 480 may be applied to the 10-hour requirement.

For students planning careers in chemistry, the recommended courses (from the list above) are Mathematics 141-142, Physics 135-136 or 137-138, and Chemistry 473-483: although not required, certain additional courses are strongly suggested for students planning to become chemists: Mathematics 241 and Chemistry 230, 320, 329, and 406. Because professional chemists need a reading knowledge of foreign languages, intermediate level competency should be acquired in German, French, Russian or Japanese. Students who are undecided about their career goals should consult the head of the department at the earliest opportunity. Unlike the Bachelor of Science in Chemistry, the regular Bachelor of Science degree is not approved by the Committee on Professional Training of the American Chemical Society.

HONORS CONCENTRATION

Candidates for the honors concentration in chemistry must fulfill all of the requirements for either the Bachelor of Science in Chemistry or the regular Bachelor of Science degree and must also satisfy the following stipulations: they must complete with grades of C or better Mathematics 141-142, Physics 135-136 or 137-138, and Chemistry 473-483, 400, and 408; and they must have an overall university GPA of at least 3.0 with a GPA in chemistry courses of at least 3.3.

Minor in Chemistry

A minor in chemistry consists of 15 hours of chemistry courses numbered above 200 including 310, 319 (4 hours) and at least one of the following sequences: 350-360, 369 (8 hours); or 471-481, 479 (8 hours), or 473-483, 479 (8 hours).

DEPARTMENT OF CLASSICS

http://web.utk.edu/~classics/

David W. Tandy, Head

Professors

Craig, G.P. (Lindsay Young Professor), PhD . . . . . . . . . . . . North Carolina
Martin, S.D. (Associate Vice Chancellor), PhD . . . . . . . . . . . . Michigan
Tandy, D.W. (Distinguished Professor of Humanities), PhD . . . . . Yale

Associate Professor

Sutherland, E.H., PhD . . . . . . . . . . . . . . . . . . . . . . . . . . . . California (Berkeley)

Assistant Professors

Graninger, C.D., PhD . . . . . . . . . . . . . . . . . . . . . . . . . . . . Cornell
Sklenar, R.J., PhD . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Michigan
Van de Moortel, A., PhD . . . . . . . . . . . . . . . . . . . . . . . Bryn Mawr

Research Professors

Gesell, G.C., PhD . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . North Carolina
Langdon, M.K., PhD . . . . . . . . . . . . . . . . . . . . . . . . . . . Pennsylvania

Adjunct Faculty

Dessel, J.P., PhD . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Arizona
Dzon, M., PhD . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Toronto (Canada)
Fitzgerald, J.L., PhD . . . . . . . . . . . . . . . . . . . . . . . . . . . . Chicago
Jones, D.W. PhD . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Chicago
Kulikowski, M., PhD . . . . . . . . . . . . . . . . . . . . . . . . . . . . Toronto (Canada)
Shepardson, C., PhD . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Duke
Stiebert, J., PhD . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Glasgow (UK)

The department's programs are designed to allow students to understand the foundations of the western cultural tradition. This is done through a focus on the classical languages and literatures, archaeology, art, mythology and religion, political and social history. Through these studies, students develop skills in critical thinking, reading, writing and speaking. They also develop a sense of the ways in which both shared traditions and personal creativity inform one's choices, and of the opportunities for good citizenship in a complex world.

CLASSICS MAJOR

CLASSICAL CIVILIZATION CONCENTRATION

The concentration in classical civilization consists of 27 hours. The required core of the major is Classics 201 plus any 9 hours from Classics 221-222, 232, 253. The remaining 15 hours may be from Classics 261-264, 251-252, any Classics course numbered 300 or above, History 366, or Philosophy 320. Students are encouraged to satisfy the foreign language requirement with Greek or Latin.

HONORS CLASSICAL CIVILIZATION CONCENTRATION

The honors classical civilization concentration consists of 29 hours. The required core of the concentration is Classics 201 plus 9 hours from the following – Classics 221-222, 232, 253. Fifteen hours must include Classics 251-252 or 261-264 with the remaining 9 hours from any Classics course numbered 300 or above, History 366, or Philosophy 320. The student must pass Classics 201 with a B+ or better and the final course in the intermediate Latin or Greek sequence (252 or 264) with a B+ or better. To graduate with honors, the student must maintain a GPA of at least 3.5 in classics courses and a minimum cumulative GPA of 3.0. The student must also present an honors thesis, for which 2 hours of independent study credit may be earned.

GREEK CONCENTRATION

The concentration in Greek consists of 27 hours including 18 hours of Greek language courses numbered above 200 plus 9 hours to be from any courses in the Classics Department (other than Classics 121-122, 150, 201, or 273).

HONORS GREEK CONCENTRATION

The honors Greek concentration consists of 29 hours. Eighteen hours of Greek language courses numbered above 200 are required, plus 9 hours from the following – any courses in the Classics Department (other than 121-122, 201, 273). The student must maintain a minimum GPA of 3.5 in Greek language courses and a minimum cumulative GPA of 3.0. In addition, of the 9 hours described above, six must be in courses numbered 300 or higher. The student must also present an honors thesis, for which 2 hours of independent study credit may be earned.

LATIN CONCENTRATION

The concentration in Latin consists of 27 hours including 18 hours of Latin language courses numbered above 200 plus 9 hours to be from any courses in the Classics Department (other than 111-112, 150, 201, or 273).

HONORS LATIN CONCENTRATION

The honors Latin concentration consists of 29 hours. Eighteen hours of Latin language courses numbered above 200 are required, plus 9 from the following – any courses in the Classics Department (other than 111-112, 150, 201, 273). The student must maintain a minimum GPA of 3.5 in Latin language courses and a minimum cumulative GPA of 3.0. In addition, of the 9 hours described above, 6 must be in courses numbered 300 or higher. The student must also present an honors thesis, for which 2 hours of independent study credit may be earned.
Placement Examination
Students who transfer to the University of Tennessee, Knoxville, from other colleges and students who enter with high school units in Latin should register for the courses in which they would normally be placed on the basis of such credits. During freshman orientation, a placement test will be given; and students will be advised if a change in registration is indicated by the results.

Proficiency Examinations
Students who have acquired a knowledge of Latin through private study or tutoring should request from the department a proficiency test. A student who earns a grade of B or better in this examination is eligible for credit toward graduation. A student who omits any course in a sequence may receive credit for it by passing the appropriate proficiency examination.

Minor in Classical Civilization
A minor in classical civilization consists of 18 hours including Classics 201 plus any 6 hours from Classics 221-222, 232, 253. The remaining 9 hours may be from Classics 261-264, 251-252, any Classics course numbered 300 or above, History 366, or Philosophy 320.

Minor in Greek
The Greek minor consists of 18 hours including 12 hours of Greek language courses numbered above 200, and 6 hours chosen from Classics 221-222, 436, 442.

Minor in Latin
The Latin minor consists of 18 hours including 12 hours of Latin language courses numbered above 200, and 6 hours from Classics 221-222, 436, 442.

COLLEGE SCHOLARS PROGRAM
Christopher P. Craig, Classics, Director

COLLEGE SCHOLARS MAJOR
College scholars is a major with selective admission. For details contact the director. All college scholars must enroll in one of the College Scholars Seminars 317-318 each term. They are encouraged to complete work in College Scholars Honors 491-492-493. Each student must complete a substantial piece of research, scholarship or creative imagination. College Scholars 498 is the appropriate course to use to receive credit for this work.

DEPARTMENT OF COMPUTER SCIENCE
http://www.cs.utk.edu/

Professor
Berry, M.W., PhD ........................................... Illinois
Dongarra, J.J., PhD ............................................. New Mexico
Gregor, J., PhD ..................................................... Aalborg (Denmark)
Langston, M.A., PhD ......................................... Texas A&M
Poore, J.H., PhD .................................................... Georgia Tech
Thomason, M.G., PhD ........................................ Duke
Vander Zanden, B.T., PhD .................................... Cornell
Ward, R.C., PhD ....................................................... Virginia

Associate Professor
Beck, M., PhD ...................................................... Cornell
MacLennan, B.J., PhD ........................................... Purdue
Parker, L.E., PhD .............................................. Massachusetts Institute of Technology
Plank, J.S., PhD .................................................... Princeton
Vose, M.D., PhD ..................................................... Texas

Assistant Professors
Huang, J., PhD ..................................................... Ohio State
Straight, D.W., PhD ................................................ Texas

Lecturer
Mayo, J.W., MS ..................................................... Tennessee

The computer has achieved a position of great importance in modern life. It is a vital tool in business, science, communications, and health care. The Department of Computer Science offers education in the principles of computer science and training in the technology of computers. The program’s emphasis is divided among hardware, software, and theory, giving students a wide view of the discipline and enabling them to discover their areas of interest. Graduates of the program are prepared to help others make effective use of computers in their daily lives.

Progression Standards
Undergraduates are required to apply to the Department of Computer Science for progression into the computer science major. Progression is based on demonstrated academic ability. The overall record will be evaluated for quality and seriousness of purpose.

The requirements are subject to change. Current requirements can be determined by consulting an advisor in the Undergraduate Programs Office or by contacting the Computer Science Department. Students are expected to apply during the semester in which they are completing the last of Computer Science 140, 160, and Mathematics 141.

Students who have met the following criteria have been approved for progression into the major.

- Completed Computer Science 140, 160, and Mathematics 141 at the University of Tennessee, Knoxville, with a GPA of 3.0 or better in these three courses and a grade of C or better in each course. Transfer students’ course work will be evaluated individually.
- GPA of 2.5 or better in all computer science courses taken at the University of Tennessee, Knoxville, that apply to the major.
- Not been disciplined for academic dishonesty in a computer science course or for abuse of university computing privileges.
- No excessive absences, withdrawals, or incompletes.

Students who meet the criteria must fill out an application available in the Computer Science Department. A student who does not meet progression requirements will not be allowed to take any upper-division computer science course that can be applied to the major.

Students in other colleges or majors at the University of Tennessee, Knoxville, must apply for progression to the major at the earliest possible date but ideally prior to 75 hours. As a minimum, all students must be admitted to the computer science major for at least the last 30 hours of work.

Transfers from other institutions are generally handled the same as transfers from other University of Tennessee, Knoxville, programs. However, a prospective transfer student should consult with an advisor in the Computer Science Department to determine which courses can be accepted toward the computer science major. It should not be assumed that courses with similar names to University of Tennessee, Knoxville, courses can be accepted toward the major.

Appeals
Those students denied progression may appeal to the Undergraduate Committee of the Computer Science Department. Information on the appeals process can be obtained by calling the Computer Science Department, 974-5067, the Undergraduate Programs Office, 974-5096, or by contacting an advisor in that office.
COMPUTER SCIENCE MAJOR

Majors in computer science should prepare their programs in consultation with an advisor in the Computer Science Department. A student is not permitted to declare a computer science major until the department's progression requirements have been met.

The major in computer science consists of 39 hours. Prerequisites to the major include Computer Science 102, 140, 160, and Mathematics 141, 142, 241, 251, with a grade of C or better in each course; and a two-semester laboratory science (Physics 135-136 or biology or chemistry). The major consists of:

- Computer Science 302, 311, 360, 365, 380.
- One of the following – Computer Science 340, 370, Mathematics 371.
- Mathematics 300.
- Either English 355 or English 360.
- Either an additional 15 hours of upper-division computer science or an additional 12 hours of upper-division computer science and either mathematics 231 or 323.

Minor in Computer Science

The prerequisites to an undergraduate minor in Computer Science 140, 160, and Mathematics 141 with a GPA of 3.0 or better in the three courses. The minor consists of 15 hours of upper-division computer science courses. Mathematics 371 may be substituted for three of those hours. A grade of C or better is required in all computer science courses applied to the minor, and a GPA not less than 2.5 must be maintained in these courses.

DEPARTMENT OF EARTH AND PLANETARY SCIENCES

http://geoweb.gg.utk.edu/
Claudia I. Mora, Head

Professors
Broadhead, T.W., PhD ................................................. Iowa
Dunne, W.M. (Associate Dean), Ph.D .............................. Bristol
Hatcher, R.T. (UT Knoxville/ORNL Distinguished Scientist),
Ph.D ....................................................... Tennessee
Labotka, T.C., PhD ............................................ California Institute of Technology
Mckay, L.D., PhD .................................................. Waterloo
McKinney, M.L., Ph.D ........................................... Yale
McSween, H.Y. (Distinguished Professor of Science), Ph.D . Harvard
Misra, K.C., Ph.D ............................................... Western Ontario (Canada)
Mora, C.I. (Carden Professor), PhD ............................... Wisconsin
Taylor, L.A., Ph.D ..................................................... Lehigh

Associate Professors
Clark, G.M., Ph.D ........................................ Penn State
Perfect, E., Ph.D ..................................................... Cornell

Assistant Professors
Baker, G.S., Ph.D .................................................. Kansas
Fedo, C.M., Ph.D ..................................................... Virginia Tech
Kah, L.C., Ph.D ..................................................... Harvard
Moersch, J.E., Ph.D .................................................. Cornell

Lecturer
Sumrall, C.D., Ph.D .................................................. Texas

The Department of Earth and Planetary Sciences emphasizes study of the Earth and of planetary systems at all scales of observation. Earth and Planetary Sciences strives to interpret the physical, chemical and biological processes operating over 4.6 billion years of Earth history, as well as those processes involved in the formation of terrestrial planetary bodies within our solar system.

GEOLOGY MAJOR

Progression to the Major
To progress into the major, students must take two courses from Geology 101-102-103, as well as Chemistry 120-130. Chemistry 130 may be taken concurrently with 300-level geology courses.

Corequisite Requirements
Corequisite requirements include Mathematics 141-142, and three courses from Biology 130-140 and Physics 135-136.

Major Requirements
Upper-division requirements include Geology 310-320-330-340-370-380 (24 hours), a maximum of 5 hours of an approved field camp, and 9 elective hours at the 400-level or above. Students are encouraged to participate in undergraduate research (Geology 493). A maximum of 3 hours of Geology 493 may count toward the major.

HONORS CONCENTRATION

Students with five completed upper-division geology courses and a cumulative GPA of at least 3.0 are encouraged to pursue an honors concentration, which includes completion of 3 hours of Geology 491, 492, or 493 beyond the normal major requirements, approval of a written thesis, and oral presentation of thesis results. A GPA of at least 3.0 must be maintained throughout matriculation. Interested students should consult their academic advisor for details.

Minor in Geology

A minor in geology consists of two courses from Geology 101-102-103, and an additional 16 hours at the 200-level or above. A maximum of 6 hours at the 200-level and 3 hours of Geology 493 may be counted toward the minor.

DEPARTMENT OF ECOLOGY AND EVOLUTIONARY BIOLOGY

http://eeb.bio.utk.edu/
Christine R.B. Boake, Head
Arthur C. Echtmaacht, Associate Head

Professors
Boake, C.R.B., PhD .............................................. Cornell
Burghardt, G.M., Ph.D ........................................ Chicago
Echtmaacht, A.C., Ph.D ........................................... Kansas
Etner, D.A., Ph.D .................................................. Minnesota
Gavrilits, S., Ph.D ................................................... Moscow State
Greenberg, N.B., Ph.D .......................................... Rutgers
Gross, L.J., Ph.D ...................................................... Cornell
Hallam, T.G., Ph.D ................................................... Missouri
Hughes, K., Ph.D ................................................... Utah
McCracken, G.R., Ph.D ........................................ Indiana
Petersen, R. (Distinguished Professor), Ph.D ........................... Columbia
Riechert, S.E. (Distinguished Service Professor), Ph.D........... Wisconsin
Sayler, G.S., Ph.D ................................................... Idaho
Schilling, E., Ph.D ..................................................... Cornell
Schultz, E., Ph.D ....................................................... Indiana
Simberloff, D. (Gore Hunger Chair of Excellence), Ph.D ........... Harvard

Associate Professors
Drake, J.A., Ph.D ................................................... Purdue
Small, R., Ph.D ...................................................... Iowa State
Smith, D., Ph.D ...................................................... Tennessee
Weltzin, J., Ph.D ...................................................... Arizona
Wofford, B.E. (Curator of Herbarium), Ph.D .......................... Tennessee

Assistant Professors
Butler, M., PhD .................................................... Washington (St. Louis)
Fitzpatrick, B.M., Ph.D ........................................... Davis
Fordyce, J.A., Ph.D .................................................. Davis
Gilchrist, M.A., Ph.D .............................................. Duke
Ner, T.J., Ph.D ......................................................... Illinois
Sanders, N.J., Ph.D ................................................... Stanford
Williams, J., Ph.D ...................................................... Georgia
Research Professors
Cooper, L.W., PhD ................................................. Alaska
Grebmeier, J.M., PhD .............................................. Alaska

Research Assistant Professor
Classen, A.T., PhD ........................................ Northern Arizona

Ecology and evolutionary biology deals with the interactions of organisms with one another and with their physical environment, and with the processes through which these interactions have developed and continue to change through time. The curriculum will provide students with an understanding of ecological interactions and evolutionary processes that are fundamental to the operation of the natural world. The scope of this program ranges from the molecular level, to individual organisms, to populations, communities, and ecosystems. The program offers career opportunities in academia, industry, governmental and non-governmental agencies that are concerned with the importance and integrity of natural systems, and in education at all levels.

Students wishing to emphasize study in this area elect to major in biological sciences with a concentration in ecology and evolutionary biology. See the description of the major and concentration under Division of Biology for requirements.

DEPARTMENT OF ECONOMICS
See faculty listing in the College of Business Administration.

The program in economics combines a broad liberal education with the rigorous study of important topics such as markets, employment, economic growth, business organization, wealth, inflation, health, environment, taxes, and the international economy.

Courses offered in the Department of Economics, housed in the College of Business Administration, provide an opportunity for a major or minor in economics in the College of Arts and Sciences.

In addition, certification to teach economics in secondary schools is available. Students with such interest should consult the College of Education, Health, and Human Sciences as early in their program as possible to determine the appropriate requirements.

ECONOMICS MAJOR
Prerequisites to the major are Economics 201 and Statistics 201, or their equivalent Honors courses (Economics 207 and/or Statistics 207).

The major consists of 27 upper-division hours in economics, and must include 311, 313, 499 and at least 9 hours in addition to 499 at the 400-level. Majors should satisfy the Mathematics and Quantitative Reasoning requirement with either Mathematics 125 or 141, and Statistics 201 (207). Students planning to pursue graduate study in economics should elect Mathematics 142 and 251 and Economics 381 and 482 as well.

HONORS CONCENTRATION
Admission is limited to students with an overall GPA of 3.2 who have earned a B or better in Economics 311, 313, and two other upper-division economics courses. Requirements are 311, 313, 498, and 18 additional upper-division hours in economics, with at least 9 hours in addition to 498 at the 400-level. Students will develop an undergraduate thesis topic with the guidance of their faculty advisor and complete the thesis while registered for Economics 498. Interested students should contact their advisor concerning details of participation.

Minor in Economics
A minor consists of Economics 201 (or 207) and 12 additional hours at the upper-division level. Upper-division economics courses must include 311, 313, and 3 or more hours at the 400-level.

DEPARTMENT OF ENGLISH
http://web.utk.edu/~english/
John Zomchick, Head

Professors
Atwill, J.M., PhD .................................................. Purdue
Cox, D.R. (Associate Dean), PhD ............................................... Missouri
Dumas, B.K., PhD ............................................................... Arkansas
Duren, R.D., PhD ................................................................. Washington
Ensor, A.R., PhD ................................................................. Indiana
Garnier, Jr., S.B. (Young Professor), PhD ..................................... Princeton
Goslee, D.E., PhD ................................................................. Yale
Goslee, N.M. (Alumni Distinguished and Young Professor), PhD ....................................... Yale
Heffernan, T.J.A. (Curry Professor), PhD ............................................ Cambridge
Kallet, M. (John C. Hodges Teaching Professor), PhD .............................................. Rutgers
Lew, B., PhD ................................................................. Texas
Leki, I., PhD ................................................................. Illinois
Liuza, R.M., PhD ................................................................. Yale
Lofaro, M.A., PhD ................................................................. Maryland
Luprecht, M.A., PhD ................................................................. Florida
Maland, C., PhD ................................................................. Michigan
Papce, M.E. (Special Assistant to the Chancellor and Associate Dean of Graduate Studies), PhD ........................................... McGill (Canada)
Smith, A.E., PhD ................................................................. Houston
Stillman, R.E., PhD ............................................................... Pennsylvania
Wier, A., MFA ................................................................. Bowling Green
Zomchick, J.P., PhD ............................................................. Columbia

Associate Professors
Aucion, M.G., PhD ............................................................... Vanderbilt
Elias, A.J., PhD ................................................................. Penn State
Hirschfield, H.A., PhD ...................................................... Duke
Hirst, R., PhD ................................................................. Rensselaer Polytechnic
Howes, L.L., PhD ................................................................. Columbia
Jennings, L.D., PhD ............................................................... North Carolina
Knight, M., MFA ................................................................. Virginia
Reij, M.J., PhD ................................................................. Kansas

Assistant Professors
Abraham, M., PhD ............................................................... Purdue
Billone, A.C., PhD .............................................................. Princeton
Coleman, D.D., PhD .............................................................. Stanford
Dzon, M.C., PhD ............................................................... Toronto (Canada)
Fishman, J.M., PhD .............................................................. Stanford
Haddox, T.F., PhD ............................................................... Vanderbilt
Ikard, D., PhD ................................................................. Wisconsin
Schoenbach, L.M., PhD ........................................................... Virginia
Seshagiri, U., PhD ................................................................. Illinois
Thaggert, M., PhD ................................................................. California (Berkeley)

Lecturers
Aaij, M.P., PhD ................................................................. Alabama
Barrow, R., PhD ................................................................. Iowa
Burton, J.C., PhD ............................................................... State University of New York (Stony Brook)
Capps, S.E., PhD ................................................................. Tennessee
Dziuban, E.Y., PhD ................................................................. Toronto (Canada)
Hardig, M.R., PhD ................................................................. Tennessee
Hardig, W.J., PhD ................................................................. Florida
Harris, S.C., PhD ................................................................. Tennessee
Havens, K.L., PhD ................................................................. Tennessee
Hewitson, J.K., PhD ............................................................... Tennessee
Hussie, A., PhD ................................................................. Illinois
Knox, L., MA ................................................................. Indiana
Larsen, W.B., PhD ................................................................. Tennessee
Larson, W., PhD ................................................................. Southern California
McCue, K., MA ................................................................. Tennessee
McDowell, M.R., MA ............................................................. Tennessee
McKinstry, D.K., PhD ............................................................. Tennessee
Melton-Summer, S.E., PhD .................................................... Tennessee
Meredith, E.G., MA ................................................................. Tennessee
Newborn, H.T., PhD ............................................................... Illinois
Palmer, H.M., MA ................................................................. Tennessee
Pearson, F.M., MA ................................................................. Tennessee
Peavler, J.L., MA ................................................................. Tennessee
Pelletier, E.Y., PhD ............................................................... Toronto (Canada)
Preston, N.H., PhD ................................................................. Tennessee
Penn, R., MA ................................................................. Tennessee
Pelletier, E.Y., PhD ................................................................. Louisiana State
Senasi, D.M., PhD ................................................................. Alabama
The English major provides students with the ability to analyze and interpret literary and other kinds of texts; to place those texts within historical, theoretical, and aesthetic contexts; to evaluate arguments according to their logical and rhetorical features; and to develop the skills of written and oral communication. While developing these abilities, students are also urged to discover their own critical and artistic voices by gaining proficiency in organizing complex material, addressing multiple audiences, and understanding the medium of language. In the spirit of liberal education, the English major attempts to satisfy society’s increasing need for a citizenry skilled in critical thought and communication.

Students planning to teach English in public schools should consult the College of Education, Health, and Human Sciences.

ENGLISH MAJOR

The English major consists of ten courses at the 300-400 level in one of the following concentrations.

Prerequisites and Corequisites

One two-semester sequence chosen from the following groups: English 201-202 (British Literature); 221-222 (Literature of the Western World); 231-232-233 (American Literature); 251-252-253 (Introduction to Literary Genres).

CREATIVE WRITING CONCENTRATION

The concentration requires a two-course sequence in creative writing; three other writing courses; four courses in literature, two of which must be before 1900, and at least one of those before 1800; one course in language, theory, cultural, ethnic, or gender studies; one or more courses from any of the department’s offerings, including criticism, film, folklore, language, literature, rhetoric, and writing. Courses may count in more than one category.

LITERATURE CONCENTRATION

The concentration consists of English 376 (Colloquium in Literature), to be taken, if possible, near the beginning of the student’s major program; four courses in literature before 1900, including at least two courses before 1800; one course in American literature; one course in twentieth-century literature; one course in language, theory, cultural, ethnic, or gender studies; two or more courses from any of the department’s offerings, including criticism, film, folklore, language, literature, rhetoric, and writing. Courses may count in more than one category.

RHETORIC AND WRITING CONCENTRATION

The concentration requires a three-course package in rhetoric and writing; one other course in rhetoric or writing; four courses in literature, two of which must be before 1900, and at least one of those before 1800; one course in language, theo-

cal, ethnic, or gender studies; one or more courses from any of the department’s offerings, including criticism, film, folklore, language, literature, rhetoric, and writing. Courses may count in more than one category.

TECHNICAL COMMUNICATIONS CONCENTRATION

The concentration consists of a three-course package in technical communications; one other course in rhetoric or writing; four courses in literature, two of which must be before 1900, and at least one of those before 1800; one course in language, theo-


cal, ethnic, or gender studies; one or more courses from any of the department’s offerings, including criticism, film, folklore, language, literature, rhetoric, and writing. Courses may count in more than one category.

The concentration requires a two-course sequence in creative writing; three other writing courses; four courses in literature, two of which must be before 1900, and at least one of those before 1800; one course in language, theory, cultural, ethnic, or gender studies; one or more courses from any of the department’s offerings, including criticism, film, folklore, language, literature, rhetoric, and writing. Courses may count in more than one category.

An English minor consists of at least 15 semester hours of English courses at the 300-400 level.

An English minor with technical communication emphasis consists of at least 15 semester hours of English courses chosen from the following: at least three courses in technical communication (chosen from 360, 460, 462, 466, or any special topics course being offered in technical communication); one course in expository writing, argumentative writing, language, rhetoric, or another technical communication course (chosen from 355, 360, 371, 372, 455, 460, 462, 466, 470, 471, 472, 484, 485, 495, 496); and one other 300- or 400-level English course.

DEPARTMENT OF GEOGRAPHY

http://web.utk.edu/~utkgeog/

Bruce A. Ralston, Head

Professors

Alkire, C.S., PhD ........................................ Georgia
Bell, T.L., PhD ........................................ Iowa
Foresta, R.A., PhD ..................................... Rutgers
Harden, C.P., PhD .................................... Colorado
Horn, S.P., PhD ........................................ California (Berkeley)
Pulsipher, L.M., PhD ................................. Southern Illinois
Ralston, B.A., PhD .................................. Northwestern
Rehder, J.B., PhD ..................................... Louisiana State
Shaw, S.L., PhD ........................................ Ohio State

Associate Professor

Grissino-Mayer, H., PhD ............................. Arizona
Orvis, K., PhD ......................................... California (Berkeley)

Assistant Professors

Drever, A., PhD ...................................... California (Los Angeles)

Adjunct Faculty

Gripshover, M.M., PhD .............................. Tennessee
Liu, C., PhD .......................................... Tennessee
McKeown, R., PhD .................................. Oregon
Tankersley, R.D., PhD .............................. Tennessee
Zanetta, M.C., PhD ................................. Ohio State

The Department of Geography provides a comprehensive program that reflects the discipline’s three main areas: human geography, physical geography, and spatial analysis. The department’s courses allow students to explore the linkages between human activities and natural systems. Students taking geography courses should develop factual knowledge, critical thinking, and
analytic skills. Training in geography allows students to know where things are located, why they are located where they are, how and why places differ, how human activity shapes and is shaped by the natural environment, and how to analyze human-environment interactions.

GEOGRAPHY MAJOR

Geography 131 and 132, and 101 or 102, are prerequisites to the major, which consists of 27 hours as follows: Geography 310 and 499; either 320, 421, or 423; either 340 or 351; one course from among 410, 411, 412, 413 or 415; one course from among 361, 363, 365, 371, 373, 375, or 379; and 9 additional credits, at least 6 of which must be taken at the 400 level. No more than 3 hours of Geography 490 may be counted toward the major.

Students who enter the major with more than 60 hours of credit, and who have completed a laboratory science sequence other than geography, may petition the department to substitute certain upper-division physical geography courses for 131 and/or 132. Students who enter the major with more than 60 hours of credit, and who have met the social science divisional requirements in departments other than geography, may petition the department to substitute certain upper-division human geography courses for 101 or 102.

HONORS CONCENTRATION

Students who have an overall GPA of 3.2 may elect to participate in an enrichment program that involves the successful completion of Geography 497 and 498 (Honors: Senior Thesis) under the direction of a faculty mentor. An approved written copy of the thesis must be submitted to the Department of Geography. Interested students should consult their advisor for details about participation.

Minor in Geography

The minor in geography consists of 15 hours of geography courses at the 300 level or above. Geography 490, 491, 492, 493 may not be counted toward the minor without departmental permission.

DEPARTMENT OF HISTORY

http://web.utk.edu/~history/

Todd A. Diacon, Head

Professors

Ash, S.V., PhD ................................................. Tennessee
Bohstedt, J., PhD ............................................. Harvard
Brummett, P., PhD ............................................ Chicago
Crabtree, L. (Chancellor), PhD ............................... Minnesota
Diacon, T.A., PhD ............................................. Wisconsin
Feller, D., PhD .................................................. Wisconsin
Norrell, R.J. (Bernadotte Schmitt Professor), PhD .......... Virginia

Associate Professors

Appier, J., PhD .................................................. California (Riverside)
Bast, R.J., PhD .................................................. Arizona
Burman, T.E., PhD .......................................... Toronto (Canada)
Dessel, J.P., PhD ................................................ Arizona
Fleming, C.G, PhD ............................................ Duke
Freeberg, E., PhD .............................................. Emory
Glover, L., PhD ................................................. Kentucky
Higgs, C.A., PhD .............................................. Yale
Kulikowski, M., PhD ......................................... Toronto (Canada)
Luleievicius, V.G, PhD ...................................... Pennsylvania
Piehler, G.K., PhD ............................................ Rutgers

Assistant Professors

DeWeerd, H., PhD .............................................. Harvard
Liu, L., PhD ...................................................... California (San Diego)
McIntosh, J.L., PhD ............................................ Johns Hopkins
Phillips, D., PhD ............................................... Harvard
Sacco, L., PhD .................................................. Southern California
Tomkins, D., PhD .............................................. Columbia
White, G., PhD .................................................. Temple

The department’s program is designed to provide students with a knowledge of their cultural traditions and of their world, past and present, and thus to prepare them for the responsibilities of citizenship in today’s complex society. Students take history courses to develop their skills in thinking, reading, writing and speaking; to understand the links between past, present and future; and to assist them in their search for personal identity.

The department welcomes non-majors in its courses. Few history courses have formal prerequisites.

HISTORY MAJOR

Majors in history should prepare their programs in consultation with a departmental faculty advisor. A student may not declare a history major until he/she has completed both semesters, with a grade of C+ or better in each course, of a survey chosen from 221-222, 227-228, 241-242, 247-248, 261-262 or any two one-semester courses from any of these sequences. AP (with a score of 4 or 5) or transfer credit is acceptable to fulfill this requirement. History 241-242 (or honors equivalents) or 261-262 are prerequisites to a major which consists of 30 hours, including:

• 6 hours of History 221-222 (or the honors equivalent).
• 24 upper-division hours, including one course in European history; one course in United States history; two courses in the history of Latin America, Asia, or Africa, at least one of which must be in Asia or Africa; and one additional course dealing predominantly with a period prior to 1750.

HONORS CONCENTRATION

The Department of History offers honors sections of the western civilization and United States history survey courses. Some entering freshmen are invited to participate; other interested students may apply. These survey courses are open to non-majors. A grade of C+ or less in any part of the freshman-sophomore honors sequence will render the student ineligible for further honors work in history.

The honors concentration requires successful completion of 307 and a senior thesis (407-408) with a grade of B or above. The honors concentration consists of 33 hours, including 30 hours as outlined in the Bachelor of Arts major above, plus 307. All juniors who are declared history majors with an overall GPA of at least 3.0 are invited to join the Junior-Senior Honors Program. Students interested in honors work at any level should consult the department's honors coordinator.

Minor in History

History 241-242 or 261-262 (or honors equivalents) are prerequisites to a minor which consists of 15 hours of courses numbered 200 or above, including at least 6 hours in United States history and 9 upper-division hours.

INTERDISCIPLINARY PROGRAMS

Don Richard Cox, Associate Dean, College of Arts and Sciences, Director

In keeping with the philosophy that integration of knowledge is as important as proficiency in a given field, the College of Arts and Sciences has combined the resources of several departments to offer a series of interdisciplinary majors and minors. These programs are Africana studies, American studies, Asian studies, cinema studies, comparative literature, environmental studies, global studies, Judaic studies, Latin American studies, legal studies, linguistics, medieval studies, and women's studies. See individual program descriptions below for the concentration and/or minor requirements.
**INTERDISCIPLINARY PROGRAMS MAJOR**  
**• AFRICANA STUDIES CONCENTRATION**  
_Winnie Reed, Sociology, Chair_

Africana Studies 201-202 are required in the concentration which consists of 24 hours from the Africana studies curriculum. At least 15 hours must represent upper-division credits. Majors are required to take Africana Studies 431, preferably in their senior year. A maximum of 6 hours in Africana Studies 492 and 493 combined can be applied toward the Africana studies concentration. In planning their program, majors must include courses from at least two other departments which cross-list courses with Africana studies in addition to the Africana studies core course offerings.

**Minor in Africana Studies**

Africana Studies 201-202 are required in the minor which consists of 15 hours, at least 9 of which must be upper-division credits. A maximum of 3 hours in Africana Studies 492 and 493 combined can be applied to a minor. The minor must include courses from at least two other departments which cross-list courses with Africana studies in addition to the Africana studies core course offerings.

**INTERDISCIPLINARY PROGRAMS MAJOR**  
**• AMERICAN STUDIES CONCENTRATION**  
_Michael Fitzgerald, Political Science, Chair_

English 231 and either 232 or 233 are prerequisites to a concentration in American studies which consists of 27 upper-division hours including American Studies 310; at least two approved American history courses; and 6 hours of approved courses chosen from the following disciplines: anthropology, economics, political science, or sociology. Courses in the concentration will be chosen in consultation with an American studies advisor, from a list approved by the program, in such a way that at least three courses help the student achieve a focus within the field. One course in the student’s curriculum must specifically focus upon one or more American ethnic minority cultures. An additional 3 to 6 hours of American Studies 493 (Independent Study) are recommended for majors in their senior year. A list of approved elective courses is published annually.

All majors and prospective majors should contact the chair of the program.

**Minor in American Studies**

The American studies minor consists of at least 15 hours of coursework chosen from the program’s list of electives, including American Studies 310 and 12 additional hours from at least two different disciplines.

**INTERDISCIPLINARY PROGRAMS MAJOR**  
**• ASIAN STUDIES CONCENTRATION**  
_Yang Zhong, Political Science, Chair_

Prerequisites to the concentration are Asian Studies 101-102. Corequisite to the concentration is competence in a major Asian language of the chosen geographical-cultural area. Competence is defined as the successful completion of the 200-level sequence of that language, or by demonstration of equivalent mastery.

The Asian studies concentration consists of 26 credit hours from the upper-division courses of Asian studies and approved departmental offerings. Twelve of the hours must be taken from courses listed within one of the four geographical-cultural areas (Islamic World; South Asia; China; Japan), and 6 of those 12 hours must come from Subdivision A and 6 from Subdivision B. Subdivision A includes art, literature, music, philosophy, and religious studies; Subdivision B includes anthropology, economics, geography, history, political science, and sociology.

Six of the 26 hours must be taken from courses listed for other geographical-cultural areas.

**Minor in Asian Studies**

The Asian studies minor consists of Asian Studies 101-102 and 15 credit hours at the 200 level and above. Twelve credit hours must be taken from courses within one of the four geographical-cultural areas. Six credit hours must come from Subdivision A and 6 from Subdivision B. Three hours must be taken from courses in another geographical-cultural area.

**CINEMA STUDIES**  
_Chris Holmlund, Modern Foreign Languages and Literatures, Chair_

**Minor in Cinema Studies**

The cinema studies minor consists of 15 hours, including Cinema Studies 281; 3 hours chosen from Cinema Studies 235, 236, or Journalism and Electronic Media 336; and 9 additional hours from any courses in cinema studies, courses cross-listed with cinema studies, or from the following list of approved courses: Journalism and Electronic Media 275, 336, 436. It is strongly recommended that Cinema Studies 281 be taken before any other courses in the minor.

For further information about the minor, consult the chairperson of the cinema studies program. Courses related to cinema studies and not listed above may be applied to the minor with the approval of the chair of the program.

**INTERDISCIPLINARY PROGRAMS MAJOR**  
**• COMPARATIVE LITERATURE CONCENTRATION**  
_Carolyn R. Hodges, Modern Foreign Languages and Literatures, Chair_

Students concentrating in comparative literature are strongly encouraged to acquire a working knowledge of a second foreign language, especially if they hope to pursue comparative literature on the graduate level.

A concentration in comparative literature consists of 27 hours including Comparative Literature 202 and 401-402, and 9 hours of literature in a foreign language in courses numbered 300 or above. The remaining 9 hours should include literature courses, either in English or in a foreign language, numbered 300 or above, from at least two of the following departments: Classics, English, Modern Foreign Languages and Literatures, and Religious Studies. Certain courses in philosophy, theatre, and interdisciplinary programs may be substituted with the approval of the chairperson of the comparative literature program.

**Minor in Comparative Literature**

A minor in comparative literature consists of 18 hours including Comparative Literature 202 and either Comparative Literature 401 or 402, 6 hours of literature in a foreign language in courses numbered 300 or above, and 6 hours of literature courses numbered 300 or above in a different department. These 6 hours may be either in English or in a foreign language and should be chosen from the following departments: English, Modern Foreign Languages and Literatures, and Religious Studies. Certain courses in philosophy, theatre, and interdisciplinary programs may be substituted with the approval of the chairperson of the comparative literature program. Minors in comparative literature are strongly encouraged to continue study of a foreign language beyond the minimum requirement.
INTERDISCIPLINARY PROGRAMS MAJOR
• ENVIRONMENTAL STUDIES
CONCENTRATION
Michael McKinney, Earth and Planetary Sciences, Chair

The concentration in environmental studies provides sound scientific, socio-economic, and philosophical background for understanding the earth’s environment with an opportunity to minor in one of the many environmentally related curricula offered by the various colleges within the university.

Prerequisites to the concentration are Biology 130-140 or 111-112; Chemistry 120-130; Geology 101; Geography 131; Mathematics 123-125 or 141-142 or 151-152; Economics 201; and Biology 250.

The concentration consists of a core and a specialty.

Core
(a) 15 hours from Geography 345; Sociology 360 or 464 or 465 (one only); Philosophy 245; Economics 362 or Agricultural Economics 470 (one only); Agriculture and Natural Resources 333; Journalism and Electronic Media 451; Geology 490.
(b) 3 hours from Geology 455 or Ecology and Evolutionary Biology 484.
(c) 3 hours from Geography 334, 433, 434, 436; Environmental and Soil Sciences 462.

Specialty
Twelve hours at the 300 level or above in one of the following departments: Biochemistry, Cellular and Molecular Biology; Chemistry; Earth and Planetary Sciences; Ecology and Evolutionary Biology; Economics; Environmental and Soil Sciences; Forestry, Wildlife and Fisheries; Geography; Plant Sciences; Political Science; or Sociology.

INTERDISCIPLINARY PROGRAMS MAJOR
• GLOBAL STUDIES CONCENTRATION
Jon Shefner, Sociology, Chair

The global studies concentration focuses on understanding connections between different parts of the world. Globalization, or the trans-national exchange of investments, commodities, people, politics, technologies, and cultures, is both a characteristic of the contemporary world and the culmination of large-scale, long-term social change. Although globalization, at times, seems dominated by new economic and political formations more powerful than the traditional nation-state, it has also mobilized new expressions of local and transnational discontent and resistance. The University of Tennessee, Knoxville, global studies curriculum helps students understand the implications of global change, allowing the university community to confront what is occurring in our immediate locale by examining what is going on elsewhere. Bringing together faculty and students from diverse perspectives creates an interdisciplinary understanding of the disruption and integration resulting from changing configurations of nations, global processes, and identities.

Global Studies 250 is a prerequisite to the concentration which requires 17-18 credit hours distributed in the following manner. Six courses, including two courses from Track I (global society and culture) and two courses from Track II (global politics and economy). The remaining two courses may be taken from any of the above lists.

Minor in Global Studies
Global Studies 250 is a prerequisite to the minor in global studies which requires 17-18 credit hours distributed in the following manner.

A. Seven core courses from the following list. A student may choose to concentrate in either global society and culture or global politics and economy. The requirements for either track will be five courses in the primary track and two courses in the secondary track.

Track I – Global Society and Culture
Anthropology 315, History 421; Comparative Literature 202; English 331, 454; Geography 345; Musicology 290; and Religious Studies 302, 333.
INTERDISCIPLINARY PROGRAMS MAJOR
• LATIN AMERICAN STUDIES
CONCENTRATION
Michael Handelsman, Modern Foreign Languages and Literatures, Chair

The concentration consists of two optional tracks: general studies or Brazilian studies.

The general studies track requires 27 upper-division hours taken from courses offered by at least three different academic departments. Three hours are to be selected from each of Spanish 331, 333, 334 or Portuguese 315, 316. The remaining hours are to be chosen from Anthropology 313, 316, 319; Cinema Studies 465; History 360, 361, 460, 461, 462, 463, 475; Geography 373; Political Science 456; Portuguese 431, 432; Spanish 401, 402, 479.

The Brazilian studies track requires 27 upper-division hours offered by at least three different academic departments. Of these hours, a minimum of 6 hours must be taken as part of UT Knoxville’s summer study program in Fortaleza, Brazil (Portuguese 491 or 493). Nine hours must come from University of Tennessee, Knoxville, courses that focus on Brazil (History 460; Portuguese 315, 316, 431, 432). The remaining 12 hours are to be selected from courses listed above as part of the general studies track.

Minor in Latin American Studies

The minor consists of 18 hours taken from courses offered by at least three different academic departments; 3 of the hours are to be selected from either Spanish 331, 333, 334, or Portuguese 315, 316; the remaining 15 hours are to be selected from the courses listed in either track of the concentration.

INTERDISCIPLINARY PROGRAMS MAJOR
• LEGAL STUDIES CONCENTRATION
John Scheb, Political Science, Chair

The legal studies concentration places the study of law within the context of a liberal arts education. This concentration offers a course of study that treats law as a historically evolving and culturally specific enterprise. The concentration seeks to attract students interested in exploring the ways in which law and legal institutions shape and are shaped by values, behavior, communication patterns, and organization of social, economic, and political systems. A multidisciplinary combination of courses permits critical reflection about how law and social life are interconnected history and culturally. The program is designed to provide education about law and legal culture. It should not be viewed as a preferred avenue for admission to law school.

Specific objectives of the program are to
• Foster an appreciation for the larger context within which law-based phenomena are developed and nourished.
• Comprehend the connections between law and other components of society; promote an interest in studying how law shapes, and is shaped by the larger social, behavioral, political, historical, and cultural context; present an interdisciplinary program that speaks to the need to address problems about law that will face us in the next century; offer an integrated program drawn from existing curriculum and faculty.

Students should contact program advisors early in planning a legal studies concentration. Other law-related courses consistent with the purposes and objectives of the major may be approved through consultation with the Chair of the Legal Studies Committee.

The concentration consists of 27 hours, including either Political Science 330 or Sociology 455 and 24 hours of upper-division courses distributed among five categories.

Analysis
3 hours from English 496, Political Science 401, Sociology 331.

Processes
6 hours from Business Law 301; Political Science 341, 430, 435, 442, 445, Sociology 451.

Perspectives
3 hours from English 490, Political Science 330, Philosophy 392. Sociology 455 (Note: Students who select Sociology 455 as their core course may not use it toward the Perspectives category. The same rule applies to Political Science 330.).

Historical and Global Dynamics
3 hours from Classics 362, Philosophy 393, Political Science 470.

Issues
6 hours from Journalism and Electronic Media 400, Political Science 431, Communication Studies 469, Women’s Studies 340.

The remaining 3 hours are to be chosen from one of the five categories.

INTERDISCIPLINARY PROGRAMS MAJOR
• LINGUISTICS CONCENTRATION
Ilona Leki, English, Chair

This concentration offers a broad exposure to the various fields of linguistics (including historical, descriptive, theoretical, and applied linguistics) along with an opportunity to study areas where linguistics overlaps with other disciplines such as psycholinguistics, socio-linguistics, and speech pathology. The program of study is designed to prepare a student for graduate work in linguistics or related areas or to serve as a general survey of language and linguistics. The program of study provides the additional possibility of emphasizing the teaching of English as a Second Language for the student interested in language-related employment at the Bachelor of Arts level.

Students should consult program advisors early in planning a linguistics major or minor. Linguistics 200 is highly recommended. Audiology and Speech Pathology 305 should be taken as soon as possible. Other 300-level courses should, if possible, be completed before 400-level courses are begun.

Corequisites
• Completion of a third year of Indo-European foreign language study.
• A two-semester sequence of a non-Indo-European language to be selected from Asian Languages 131-132 (Chinese); Asian Languages 151-152 (Japanese); Asian Studies 121-122 (Modern Arabic); Asian Studies 141-142 (Modern Hebrew); Educational Interpreting 223, 226 (American Sign Language); Religious Studies 309-310 (Classical Hebrew); or other non-Indo-European languages offered in a two-course sequence and approved by the Linguistics Committee.

Concentration (30 hours)
21 hours composed of
• 9 hours of the following, selected in consultation with a linguistics advisor from Anthropology 411; Audiology and Speech Pathology 302, 320; Communication Studies 300, 320; Foreign Language/ESL Education 455; French 421, 422; Linguistics 321, 400, 429, 431, 435, 436, 472, 474, 476, 477, 485, 490, 491, 492, 493; Philosophy 472; Psychology 400, 424; Spanish 421, 422; Theatre 326.
INTERDISCIPLINARY PROGRAMS MAJOR
• WOMEN’S STUDIES CONCENTRATION

Cheryl Brown Travis, Psychology, Chair

Women’s studies encourages inquiry into the full range of the human experience by raising new questions and opening new areas of research concerning women. The discipline enriches the traditional Arts and Sciences curriculum by adding new perspectives on women’s lives and accomplishments. Women’s studies can broaden the education of both male and female students by helping them to understand the limitations placed on both sexes by narrowly defined sex roles. Wherever there is a need to understand women and an interest in the new roles they are playing in society, women’s studies can enhance a student’s career preparation and opportunities.

The concentration in women’s studies consists of 30 semester hours including one of the Images of Women in Literature courses (either 210 or 215), Women in Society (220), Emergence of the Modern American Woman (310), at least 3 hours of Independent Study (493), and at least one course from each of the three major areas: Women’s Heritage (383, 432, 453, 466, 483), Contemporary Issues (320, 340, 360, 375, 382, 410, 425, 434, 476), and Literature and the Arts (330, 332, 422, 433, 469).

Because its content varies, 400 may be included in any of these areas. Students are encouraged to take at least 9 hours in one of these areas.

Minor in Women’s Studies

The women’s studies minor consists of one of the Images of Women in Literature courses (either 210 or 215), Women in Society (220), and an additional 12 hours of upper-division women’s studies courses. Approved special topics courses related to women’s studies may also be applied toward a major or a minor.

DEPARTMENT OF MATHEMATICS

http://www.math.utk.edu/

Robert J. Daverman, Interim Head

Professors
Alexiades, V., PhD ............................................. Delaware
Anderson, D.F., PhD .......................................... Chicago
Conway, J.B., PhD ............................................. Louisiana State
Daverman, R.J., PhD .......................................... Wisconsin
Dobbs, D.E., PhD .................................................. Cornell
Dydk, J., PhD ....................................................... Warsaw (Poland)
Feng, X., PhD ...................................................... Purdue
Gavrillets, S., PhD .............................................. Moscow State
Gross, L., PhD .................................................... Cornell
Hinton, D.B., PhD ............................................... Tennessee
Jordan, G.S., PhD ................................................ Wisconsin
Karakashian, O., PhD ......................................... Harvard
Lenhart, S., PhD .................................................. Kentucky
Mulay, S., PhD ..................................................... Purdue
Piault, C.P., PhD ................................................. Maryland
Rajput, B.S., PhD ................................................ Illinois
Richter, S., PhD ..................................................... Michigan
Rosinski, J., PhD .................................................. Wrocaw (Poland)
Schaefer, P.W., PhD ............................................. Maryland
Simpson, H., PhD ............................................... California Institute of Technology
Soni, R.P., PhD ...................................................... Oregon State
Stephenson, K.R., PhD ......................................... Wisconsin
Sundberg, C., PhD ............................................... Wisconsin
Thistlethwaite, M., PhD ........................................ Manchester (UK)
Wade, W.R., PhD ............................................... California (Riverside)
Wagner, G.G., PhD ............................................. Duke
Xiong, J., PhD .................................................... North Carolina

Associate Professors
Collins, C., PhD ................................................. Minnesota
Freire, A., PhD ................................................... Princeton
Schulze, T., PhD .................................................. Northwestern
Todorova, G.H., PhD ........................................... Moscow State
Tzermias, P., PhD ............................................... California (Berkeley)

Assistant Professors
Brodskiy, N., PhD ............................................... Saskatchewan (Canada)
Chen, X., PhD .................................................... Rutgers
Conant, J., PhD ................................................... Rutgers
Denzerl, J., PhD ................................................ ETH (Zurich)
Wang, C., PhD ..................................................... Temple

Lecturers
Baiamonte, M., MS ............................................... Texas A&M
Bonee, K., MS ..................................................... Tennessee
Campbell, T., MS ............................................... Tennessee
Cook, T., MS ....................................................... Tennessee
Fowler, J., MA .................................................... Kentucky
Gilbert, M., MS ................................................... Tennessee

Minor in Linguistics

A minor in linguistics shall consist of 18 credit hours composed of:

• Either English 471 or 3 hours selected in consultation with a linguistics advisor from Anthropology 411; Audiology and Speech Pathology 302, 320; Foreign Language/ESL Education 455; French 421, 422; Linguistics 321, 400, 429, 431, 435, 436, 472, 474, 476, 477, 485, 490, 491, 492, 493; Philosophy 472; Psychology 400, 424; Spanish 421, 422; Communication Studies 300, 320; Theatre 326.
• 15 additional hours – Audiology and Speech Pathology 305; English 371 or 372; Linguistics 423 and 425 or 426; plus 3 hours selected in consultation with a linguistics advisor.

INTERDISCIPLINARY PROGRAMS MAJOR
• MEDIEVAL STUDIES CONCENTRATION

Robert Bast, History, Chair

A concentration in medieval studies focuses upon culture and society from the collapse of the Roman Empire to the 16th century. Such a concentration offers the opportunity to deepen one’s self-awareness and broaden one’s view of the range of human possibilities by studying a very different and remote culture, its conditions of life, social and political institutions, values and ideals, and modes of perception and expression. Latin is the most appropriate language for students in the medieval studies concentration and is essential for those who plan to continue their studies in graduate school. In addition, students planning to go on to graduate school are strongly advised to supplement their medieval studies concentration with extensive work in one of the traditional disciplines.

The concentration consists of Medieval Studies 201 and 403 and 21 hours of upper-division courses concerned primarily with the medieval experience, divided among the following three categories.

Category 1 – History, Philosophy, and Political Science

History 312, 313, 330, 334, 369, 474; Philosophy 322; Political Science 475.

Category 2 – Language and Literature

Classics 435; English 371, 401, 402; French 410; Italian 401, 402.

Category 3 – The Arts

Architecture 415; Art History 425, 431, 441, 451; Musicology 210.

Courses should either form a related pattern (for example, courses in the literature and history of medieval England or Italy) or should revolve around a particular discipline or two closely related disciplines (for example, courses in the history of art and architecture).

Minor in Medieval Studies

A minor in medieval studies consists of Medieval Studies 201 and 403 and 12 additional hours distributed among the categories listed above for the major. Each student’s program, major or minor, must be approved in advance by the Medieval Studies Coordinating Committee chairperson.
Students who are interested in participating in the departmental honors program are urged to enroll in Mathematics 300 as soon as possible. Students who have completed Mathematics 300 may apply to the Mathematics Undergraduate Office for admission into the program, no later than the end of the junior year. Admission is based on recommendation of two University of Tennessee, Knoxville, mathematics faculty, including the student’s teacher in Mathematics 300 or an upper-division Mathematics honors course. Students are normally expected to be in the top 20% among Mathematics 300 students to be admitted to the honors program. Those who are not admitted based on performance in Mathematics 300 but who do exceptionally well in an upper-division mathematics honors course may also be admitted. Membership in the Chancellor’s Honors Program is not required, nor does such membership guarantee admission into the departmental honors program.

Honors students must meet stronger requirements. Specifically, honors students must meet all the requirements for a Bachelor of Science in Mathematics, but must also enroll in at least 4 hours of Mathematics 497 and take two upper-division mathematics sequences (instead of one), one of which must be an honors sequence. Honors students must also maintain a 3.4 cumulative GPA in all upper-division math courses and write a thesis (normally while enrolled in Mathematics 498) that must be approved by an honors thesis committee. The honors category upon graduation is determined as follows, based on the GPA of all upper-division math courses: GPA at least 3.4 – Honors; GPA at least 3.6 – High Honors; GPA at least 3.8 – Highest Honors.

### SAMPLE PROGRAMS

There are many careers one can pursue with a mathematics major. Sample programs for four different goals are listed below. Additional information is available in the Department of Mathematics office.

#### Industrial Employment

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics 141-142 and 171</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English Composition</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Foreign Language</td>
<td></td>
<td></td>
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<tr>
<td>Lab Science Distribution Requirement</td>
<td></td>
<td>8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Year</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics 231, 241 (or 247), 251 (257), 300; and 2 (eight additional courses at the 300-400 level (except 399, 403, 405, 450, 497, and 498) satisfying the following conditions.</td>
<td></td>
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<tr>
<td>At least one course must be taken from each of the following categories.</td>
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<tr>
<td>Algebra – 351, 455-456 (457-458).</td>
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<tr>
<td>Analysis – 341, 445-446 (447-448).</td>
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<tr>
<td>Numerical Analysis – 371 or Computer Science 370, 471-472.</td>
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<tr>
<td>At least one 400-level two-semester sequence must be taken from the list above.</td>
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<tr>
<td>Computer Science 311 and Computer Science 380 may be used as upper-division mathematics electives in part (2).</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Third Year</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics 351, 431 (or 435), 341, 371</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Humanities Distribution Requirement</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Social Science Distribution Requirement</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>12</td>
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<table>
<thead>
<tr>
<th>Fourth Year</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics 471-472, 423, 475</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Upper-Level Distribution Requirement</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Oral Communication Requirement</td>
<td></td>
<td>1-3</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>4-6</td>
</tr>
<tr>
<td>Total 120 minimum</td>
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</table>

#### Preparation for Graduate School

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>Mathematics 141-142 (or 147-148) and 171</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>English Composition</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Foreign Language (beginning level, preferably French, German, or Russian)</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Lab Science Distribution Requirement</td>
<td></td>
<td>8</td>
</tr>
</tbody>
</table>
### 5TH YEAR MASTER OF SCIENCE

Students may earn a Bachelor of Science (majoring in mathematics) and a Master of Science with a major in mathematics in five years as follows. (See the Graduate Catalog for more information on the Master of Science degree.) Please note that admission as a graduate student must be obtained prior to the beginning of the fifth year.

- **Complete a total of 129 hours, including 99 hours of undergraduate credit prior to the fourth year and no more than 15 hours per semester in the fourth year.**

- **Do not complete the requirements for an undergraduate degree prior to the end of the fourth year. (For example, postpone one upper-level distribution requirement until the last semester of the fourth year).**

- **Complete an additional 9 hours of 400- or 500-level mathematics courses for graduate credit by submitting a “Senior Requesting Graduate Credit” form and obtaining Senior Privilege through the Office of Graduate Student Services (requires a 3.0 cumulative GPA). These courses must be taken in the fourth year and may not be used to fulfill any requirements for the undergraduate mathematics major.**

- **In the fifth year, complete 9 hours per semester of graduate courses fulfilling the requirements for a Master of Science degree, including two graduate sequences and Master of Science project.**

- **Complete 3 graduate hours during the summer preceding or following the fifth year.**

The Mathematics Department awards graduate assistantships each year. The assistantship pays graduate tuition, as well as a stipend for living expenses. Students who fill all requirements of the Mathematics Honors Program will be given priority for a graduate teaching assistantship from the UT Mathematics Department beginning in the academic year following award of the Bachelor of Science degree.

### Accelerated/5th Year Master of Science

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics 147-148 and 300</td>
<td>.11</td>
</tr>
<tr>
<td>English Composition</td>
<td>.6</td>
</tr>
<tr>
<td>Foreign Language</td>
<td>.6</td>
</tr>
<tr>
<td>Lab Science Distribution Requirement</td>
<td>.8</td>
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<tr>
<td>Total 120 minimum</td>
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</table>

<table>
<thead>
<tr>
<th>Second Year</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics 231, 241, 257, and 300</td>
<td>.13</td>
</tr>
<tr>
<td>Non-U.S. History Distribution Requirement</td>
<td>.6</td>
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<tr>
<td>Social Science Distribution Requirement</td>
<td>.6</td>
</tr>
<tr>
<td>Foreign Language (completion of secondary level)</td>
<td>.3</td>
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<tr>
<td>Elective</td>
<td>.0-2</td>
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<tr>
<td>Total 120 minimum</td>
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<table>
<thead>
<tr>
<th>Third Year</th>
<th>Hours Credit</th>
</tr>
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<tbody>
<tr>
<td>Mathematics 323, 351, 371, 400</td>
<td>.15</td>
</tr>
<tr>
<td>Humanities Distribution Requirement</td>
<td>.6</td>
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<tr>
<td>Social Sciences Distribution Requirement</td>
<td>.3</td>
</tr>
<tr>
<td>Educational Psychology 210</td>
<td>.3</td>
</tr>
<tr>
<td>Total 120 minimum</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Fourth Year</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics 445-446, 460, 421 (or 411, 431)</td>
<td>.12</td>
</tr>
<tr>
<td>Upper-Level Distribution Requirement</td>
<td>.6</td>
</tr>
<tr>
<td>Cultural Studies in Education 400</td>
<td>.2</td>
</tr>
<tr>
<td>Oral Communication Requirement</td>
<td>.1-3</td>
</tr>
<tr>
<td>Educational Psychology 401</td>
<td>.2</td>
</tr>
<tr>
<td>Special Education 402</td>
<td>.2</td>
</tr>
<tr>
<td>Theory and Practice in Teacher Education 352 (1), 335 (3)</td>
<td>.4</td>
</tr>
<tr>
<td>Instructional Technology 486</td>
<td>.3</td>
</tr>
<tr>
<td>Total 120 minimum</td>
<td></td>
</tr>
</tbody>
</table>

### 5TH YEAR MASTER OF SCIENCE IN STATISTICS

Students may earn a Bachelor of Science with a major in mathematics and a Master of Science with a major in statistics in five years following a similar program as above. For more information contact the Department of Statistics, Operations and Management Science.

### Minor in Mathematics

Prerequisite to the minor — Mathematics 141-142 (or 147-148). The minor consists of Mathematics 231, 241, 257, 300 and 9 additional hours at the 300-400 level (except 399, 405, 490, 497, and 498). Computer Science 370 may be substituted for three of those hours. The grade in each of these courses must be at least C.
LITERATURES

Microbiology is the study of organisms so small that they must be viewed with a microscope. These organisms include bacteria, yeasts, molds, protozoa and viruses. Microbiology is one of the fastest growing areas of science. The concentration in microbiology is designed to furnish necessary experience in academic and practical skills to prepare graduates for immediate entry into the job market or for continuing graduate education in pure or applied biological sciences. Graduates with a concentration in microbiology find positions in the areas of medical, agricultural, food, industrial, or pharmaceutical microbiology. In addition, many microbiologists pursue careers in environmental microbiology and bioremediation. Other students become teachers, science writers, technical librarians, or managers of scientific companies. The microbiology concentration also provides an excellent background for students who plan to enter medical school, veterinary school or other health science graduate programs.

Students wishing to emphasize study in this area elect to major in biological sciences with a concentration in microbiology. See the description of the biological sciences major under Division of Biology for requirements.

DEPARTMENT OF MODERN FOREIGN LANGUAGES AND LITERATURES

http://web.utk.edu/~mfl/
Chauncey J. Mellor, Interim Head

Professors

Brady, P. (Shumway Chair of Excellence), PhD ......................... Université de Paris (Sorbonne)
Brizio-Skov, F., PhD ............................................ Washington
Campion, E.J., PhD .............................................. Yale
Creel, B., PhD .................................................... California (Davis)
DiMaria, S., PhD .................................................. Wisconsin
Handelsman, M.H. (Distinguished Professor), PhD .................. Florida
Hodges, C.R. (Associate Dean), PhD ................................ Chicago
Holmlund, C., PhD .............................................. Wisconsin
Levy, K.D., PhD ................................................... Kentucky
Mellor, C.J., PhD .................................................. Chicago
Rivera-Rodas, O., PhD .......................................... California (Davis)
Romeiser, J.B., PhD ............................................. Vanderbilt
Young, D.J., PhD .................................................. Texas

Associate Professors

Blackwell, S.H., PhD ........................................... Indiana
Cruz-Cámara, N., PhD ........................................... State University of New York (Buffalo)
Essif, L., PhD .................................................... Brown
Kaplan, G., PhD .................................................. Pennsylvania
LaCure, J., PhD .................................................... Indiana
Lee, D.E., PhD .................................................... Stanford
McAlpin, M.K., PhD ............................................ Columbia

Ohnesorg, S., PhD ................................................ McGill (Canada)
Pervukhina, N.K., PhD ........................................... Bryn Mawr
Silva-Filho, E., PhD .............................................. North Carolina

Assistant Professors

Arnold, M.N., PhD ............................................... Texas
Ayo, A., PhD ..................................................... Arizona
Berwald, O., PhD ............................................... North Carolina
Cano, L., PhD ..................................................... Florida State
Duke, D., PhD ..................................................... Pittsburgh
Gimmel, M., PhD ................................................. Indiana
Gregory, A., PhD ................................................ Texas
He, D., PhD ....................................................... British Columbia
Honguchi, N., PhD .............................................. Pennsylvania
Johnson, E., PhD ............................................... Tennessee
Kong, K., PhD ..................................................... Michigan
Magilow, D.H., PhD ............................................. Princeton

Programs in the Department of Modern Foreign Languages and Literatures provide students with courses in language, literature, linguistics, and culture. Along with developing language proficiency in reading, writing, speaking, and listening comprehension, the courses prepare students for study abroad and offer learning experiences that foster understanding and appreciation of global issues and multicultural perspectives.

Placement Examination

Students who have had previous work (either two or more years in high school or one year in college) in Chinese, French, German, Italian, Japanese, Portuguese, Russian, or Spanish must take a placement test to determine the appropriate level course for which to register. Placement tests are given for incoming students during summer orientation and throughout the year. Please contact the department for further details.

Proficiency Examinations

Students who have acquired a knowledge of French, German, Italian, Russian, or Spanish should request a proficiency test. A student earning a grade of C or better will receive credit for an appropriate number of courses. Superior students are encouraged to proceed as rapidly as their achievement permits.

Study Abroad

Five summer study abroad opportunities are available to students through the department. The department sponsors programs in Brazil, France, Italy, Mexico, and Spain. Students can earn up to 6 credit hours by participating in these programs. In most cases, the courses will fulfill part or all of the foreign language requirement (completion of the elementary or intermediate level). Upper-division classes in literature, culture, and language are also available for major and minor credit. Participation in these programs will satisfy the foreign study requirements for language and world business. A faculty member accompanies students in the program. In addition to formal classes held at a major university in the city, group excursions to cultural and historical sites are an integral part of the program. For more information concerning prerequisites, lodging arrangements, costs, and dates of an individual program, contact the Department of Modern Foreign Languages and Literatures, 701 McClung Tower.

Students are also encouraged to study abroad, particularly through participation in the university’s International Student Exchange Program (ISEP). The department is also prepared to recommend summer-study programs and year-abroad programs for students who are interested in foreign study. Credits from recognized foreign-study programs can readily be transferred to the University of Tennessee, Knoxville. For qualified students, the department also offers Asian Languages 491, German 491, and Russian 491. Students should consult the department before registering for the foreign study course.

FRENCH MAJOR

The French major consists of 30 hours in courses numbered 333 and above. (French 300 does not count toward the major but is recommended for students needing grammar review.) All majors must complete the following courses (or their equivalent