Biology is the study of living things—what they are, how they work, how they interact, and how they change over time. A B.S. degree in Biology provides an excellent foundation from which to pursue graduate or professional study or post-graduate employment.

What do students in Biology study?

Once you have completed the foundation courses, you can explore a diversity of topics in the biological sciences. These topics include such areas as cell and molecular biology, microbiology, genetics, physiology, evolution, plant biology, and ecology. Any of these areas can be studied in depth in over 70 courses covering such subjects as biochemistry, vertebrate anatomy, immunology, ornithology, wetland ecology, mammalogy, developmental biology, botany, and animal behavior. Furthermore, the department emphasizes hands-on research experiences as a critical component of the undergraduate curriculum.

What have our students done with their Biology degrees?

You will find our recent graduates in medical, pharmacy, dental, and allied health schools across the country. Many are teaching in universities or high schools, or work as environmental educators in public or private interpretive programs. Others are pursuing research careers at universities, research institutions, or in industry. Several graduates are employed as field or laboratory biologists for federal, state, and local governmental agencies. Still others work in biomedical businesses and law, regulation, or policy.

What other opportunities does the Department of Biological Sciences offer?

- Involvement in specialized research and teaching activities through the Integrated Microscopy Center, Meeman Biological Station, Ecological Research Center, W. Harry Feinstone Center for Genomic Research, and Gulf Coast Marine Laboratory
- One-on-one mentoring while participating in active biological research programs that can lead to professional publications and presentations
- Participation in extended field studies inside and outside the United States
- Exposure to national and international research and researchers through the department’s weekly seminar series
BIOLOGY COURSES

BIOL 1010. Biology of Cells.
BIOL 1011. Biology of Cells Lab.
BIOL 1110. General Biology I.
BIOL 1111. General Biology I Lab.
BIOL 1120. General Biology II.
BIOL 1121. General Biology II Lab.
BIOL 1230. Microbiology.
BIOL 1231. Microbiology Laboratory.
BIOL 2010. Anatomy and Physiology I.
BIOL 2020. Anatomy and Physiology II.
BIOL 3050. General Ecology.
BIOL 3051. General Ecology Lab.
BIOL 3072. Genetics.
BIOL 3073. Genetics Laboratory.
BIOL 3130. Cell Biology.
BIOL 3200. General Botany.
BIOL 3500. Microbiology I.
BIOL 3505. General Microbiology Lab.
BIOL 3550. Microbiology II.
BIOL 3620. Comparative Anatomy of Vertebrates.
BIOL 3730. Vertebrate Physiology.
BIOL 4000. Research I.
BIOL 4001. Research II.
BIOL 4053. Plant Ecology.
BIOL 4055. Ecological and Environmental Issues.
BIOL 4056. Tropical Ecology.
BIOL 4071. Human Genetics.
BIOL 4100-6100. Evolution.

BIOL 4150-6150. Developmental Biology.
BIOL 4230. Plant Physiology.
BIOL 4241. Biogeography
BIOL 4245. Plant Systematics/Evolution
BIOL 4300. Microbial Physiology.
BIOL 4320. Stem Cells: Culture/Application.
BIOL 4375. Molecular Biology.
BIOL 4380. Vertebrate Histology.
BIOL 4401. Plant Cell and Molecular Biology.
BIOL 4440. Pathogenic Bacteriology.
BIOL 4445. Immunology.
BIOL 4450. Microbial Ecology.
BIOL 4465. Advanced Medical Microbiology Lab.
BIOL 4480. Cellular and Molecular Pharmacology.
BIOL 4490. Intro Genomics/Bioinformatics.
BIOL 4501. Virology.
BIOL 4503. Lab Techniques in Biochemistry.
BIOL 4504. Lab Techniques in Molecular Biology.
BIOL 4511. Biochemistry I.
BIOL 4512. Biochemistry II.
BIOL 4570. Practicum In Biology.
BIOL 4604. Animal Behavior.
BIOL 4610. Honors Senior Seminar.
BIOL 4630. General Endocrinology.
BIOL 4635. Neurobiology.
BIOL 4640. Ornithology.
BIOL 4651. Field Techniques of Vertebrate Zoology.
BIOL 4740. Mammalogy.
BIOL 4744. Herpetology.
BIOL 4900. Entomology.

Please consult the Undergraduate Catalog at http://catalog.memphis.edu for complete descriptions.

PRE-PROFESSIONAL ADVISING:
Students find that our curriculum and facilities offer excellent preparation for a career in the health professions. Additionally, the Pre-Professional Advisor, Jessica Kelso (jgclffrd@memphis.edu), in the Dean's Office of the College of Arts and Sciences, offers resource advising and career information to students planning on applying to the following professional programs: medicine, dentistry, pharmacy, optometry, veterinary medicine, and allied health fields including cytotechnology, dental hygiene, health information management, medical technology, occupational therapy and physical therapy. All pre-professional students are strongly encouraged to check the Pre-Health website for more information: http://www.memphis.edu/cas/pre_health/index.php
# BIOLOGY
## SAMPLE FOUR-YEAR PLAN

### Freshman Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ENGL 1010</td>
<td>3</td>
</tr>
<tr>
<td>GE MATH- 1830 or 1910</td>
<td>3-4</td>
</tr>
<tr>
<td>CHEM 1110/1111</td>
<td>4</td>
</tr>
<tr>
<td>GE Social/Behavioral Science</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 1020</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 1110/1111</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 1120/1121</td>
<td>4</td>
</tr>
<tr>
<td>GE Social/Behavioral Science</td>
<td>3</td>
</tr>
<tr>
<td>GE Humanities/Fine Arts</td>
<td>3</td>
</tr>
<tr>
<td><strong>Semester Totals</strong></td>
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### Sophomore Year

<table>
<thead>
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<th>Course</th>
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<tbody>
<tr>
<td>BIOL 1120/1121</td>
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</tr>
<tr>
<td>CHEM 3301/3310</td>
<td>4</td>
</tr>
<tr>
<td>COMM 2381</td>
<td>3</td>
</tr>
<tr>
<td>GE History</td>
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</tr>
<tr>
<td>GE Social/Behavioral Science</td>
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</tr>
<tr>
<td>BIOL 3130</td>
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<tr>
<td>CHEM 3501/3511</td>
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<tr>
<td>ENGL 2201 or 2202</td>
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<td>Elective*</td>
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</tr>
<tr>
<td>Skills Course+</td>
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<td><strong>Semester Totals</strong></td>
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### Junior Year

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<tr>
<td>PHYS selection*</td>
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<tr>
<td>Skills Course+</td>
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<tr>
<td>BIOL 4100</td>
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<td>UD BIOL</td>
<td>4</td>
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<tr>
<td>GE Humanities/Fine Arts</td>
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<td><strong>Semester Totals</strong></td>
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</tr>
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</table>

### Senior Year

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Science Ethics course</td>
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<tr>
<td>UD BIOL</td>
<td>4</td>
</tr>
<tr>
<td>UD BIOL</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>GE History</td>
<td>3</td>
</tr>
<tr>
<td>UD BIOL</td>
<td>4</td>
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<td>UD Social Science</td>
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<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td><strong>Semester Totals</strong></td>
<td>16</td>
</tr>
</tbody>
</table>

*Choose PHYS 2010/2011 and 2020/2021 OR 2110/2111 and 2120/2121.
†Students continuing their high school foreign language, e.g. for a foreign language major/minor and/or to meet the BIOL skills course requirement, are encouraged to take foreign language in the freshman year.

Undergraduate research is strongly encouraged as part of the elective hours.

GE = General Education Requirements
BS = Bachelor of Science college requirements
UD = Upper division

Foreign Language Requirement – See the Undergraduate Catalog: [http://catalog.memphis.edu](http://catalog.memphis.edu)

Degree hours = 120
42 Upper Division hours required for graduation
No more than 2 hours of physical education courses may be counted toward a degree.
Residence – 30 of the last 60 hours must be taken at University of Memphis; at least 60 hours must be at a four-year institution; transfer students must earn at least 6 hours of a major at UM and at least 3 hours of a minor at UM
BIOLOGY PROGRAM REQUIREMENTS

A. University General Education Program (41 hours)
See the Undergraduate Catalog for the University General Education Program requirements. Note that MATH 1830 or MATH 1910 is required for the B.S. degree.

B. The Major (64 hours in addition to University General Education Program and B.S. degree requirements)
Completion of 36 hours in BIOL courses, 16 hours in CHEM courses, 3-4 hours in MATH courses, 8 hours in PHYS courses, and 12 hours in Required Support Courses as outlined:

1) Biology Requirements: BIOL 1110/1111, BIOL 1120/1121 (these courses are included in the University General Education Program), BIOL 3072, 3073, 3130, 4100; 18 additional upper division hours in BIOL courses approved by the department, including (a) one organismal diversity course from among BIOL 3200, 3620, 4245, 4375, 4640, 4740, 4744, or 4900, and (b) one additional laboratory or lecture/laboratory course. No more than five total credit hours of research and practicum (BIOL 4000, BIOL 4001, BIOL 4570) can be applied toward major requirements.

2) Additional Science and Math Requirements: CHEM 1110/1111, 1120/1121, 3301/3310, 3501/3511; MATH 1830 or 1910 (these courses are included in the university General Education Program); and PHYS 2010/2011, 2020/2021 or 2110/2111, 2120/2121.

3) Required Support Courses: Select courses from each of the following three areas for a total of at least 12 hours:
   a) Science Ethics (one course): PHIL 3512, 3514, 3515.
   b) Upper Division Social Science (one course): ANTH 3111, 4111, 4220, 4510, 4511, 4521, 4531, 4541, 4551, 4571, ECON 4230, 4740, ESCI 4201, 4251, 4252, POLS 4512, PSYC 3306, 3307, 3507, 3512, 4305, SOCI 3401, 3432, 4420, 4541, 4851.
   c) Skill Courses (two courses): CLAS 3021, COMP 1900 or COMP 4001, ENGL 3601, ESCI 4511, 4515, HLSC 4530; MATH 4611 or PSYC 3010, 3020; Foreign Language: 6 hours in a single foreign language or equivalent. If the language chosen was used to meet University admissions requirements, students must take the foreign language placement exam and complete two sequential courses beginning with the course into which placed by the exam. If a different language is chosen, any 6 hours will fulfill the requirement.

C. Electives
Electives may be chosen to bring the total number of hours to 120.

Accelerated B.S./M.S. Program in Biology
This program allows outstanding undergraduates to begin the coursework for the Master of Science in Biology during their senior year. Students are encouraged to begin planning to enter the Accelerated B.S./M.S. program early in their undergraduate career, in consultation with their advisor in the Department of Biological Sciences. Working with the undergraduate and graduate academic coordinators, undergraduates selected into this program begin a carefully tailored course of study which will allow them to complete their B.S. degree while they also begin the coursework toward their M.S. Please consult the Undergraduate Catalog for further information.

Biology Minor
Completion of 18 semester hours in BIOL courses including BIOL 1110/1111, BIOL 1120/1121 and 10 upper division hours.

For more information, contact:

Department of Biological Sciences
http://www.memphis.edu/biology
Life Sciences 201
901-678-2581
Chair: Dr. David Freeman
dfreemn1@memphis.edu

Undergraduate Advising Center
Life Sciences 237, 901-678-1312
Mr. Charles Plesofsky
czplsfsk@memphis.edu

The University of Memphis
http://www.memphis.edu

The College of Arts and Sciences
http://www.memphis.edu/cas

UM Career Services: http://www.memphis.edu/careerservices/

The University of Memphis is an Equal Opportunity/Affirmative Action University. It is committed to education of a non-racially identifiable student body.

9/18