Biology, BA

The B.A. degree provides maximum flexibility for biology majors to pursue an undergraduate liberal arts course of study that can lead to professional careers in medicine, allied health, public and environmental health, law, and graduate studies in the life sciences. Candidates must have a cumulative grade point average of 2.0 or better in biology courses. Effective fall semester 2009, candidates must also earn a minimum grade of C- in all core courses.

All B.A. degree majors must take at least 39 credit hours, but not more than 50 hours, in appropriate biology course work. A minimum of 18 hours at or above the 2000 level (including one laboratory) must be taken in residence in the UMSL Department of Biology in order to receive a B.A. degree from the College of Arts and Sciences with a major in biology.

Lecture and Seminar Course Requirements

Core Courses

The following biology courses or their equivalents are required:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 1800</td>
<td>Introduction to the Biology Major</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 1821</td>
<td>Introductory Biology: Organisms and the Environment (MOTR BIOL 150L)</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 1831</td>
<td>Introductory Biology: From Molecules to Organisms (MOTR BIOL 150L)</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 2012</td>
<td>Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 3302</td>
<td>Introduction to Evolution</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 3622</td>
<td>Cell Biology</td>
<td>3</td>
</tr>
</tbody>
</table>
**Biological Diversity**  
Select one of the following diversity courses:  

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 2102</td>
<td>General Ecology</td>
<td>3-5</td>
</tr>
<tr>
<td>BIOL 2402</td>
<td>Vertebrate Anatomy</td>
<td>3-5</td>
</tr>
<tr>
<td>BIOL 2482</td>
<td>Microbiology</td>
<td>3-5</td>
</tr>
<tr>
<td>BIOL 2501</td>
<td>Biology of Plants</td>
<td>3-5</td>
</tr>
<tr>
<td>BIOL 4402</td>
<td>Ornithology</td>
<td>3-5</td>
</tr>
<tr>
<td>BIOL 4422</td>
<td>Entomology</td>
<td>3-5</td>
</tr>
</tbody>
</table>
| BIOL 4501 | Flowering Plant Families: Phylogeny and Diversification | 3-5 |**Capstone**  
Select one of the following:  

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 4889</td>
<td>Senior Seminar</td>
<td>2-4</td>
</tr>
<tr>
<td>SEC ED 4985</td>
<td>Curriculum and Methods of Teaching Life Sciences</td>
<td>2-4</td>
</tr>
<tr>
<td>&amp; BIOL 4986</td>
<td>and Laboratory in Teaching Life Sciences</td>
<td>2-4</td>
</tr>
</tbody>
</table>

**Elective Courses**

Three additional biology lecture courses, at the 2000 level or higher are required. They may be selected from any of the lecture or lecture-laboratory courses offered. Selection of these courses should reflect the career interest of the student. Biology courses taken to fulfill basic skill requirements (e.g., statistics requirement or biochemistry option) can be used to satisfy this requirement.

At least two biology lecture courses taken as part of the core or as electives must be at the 4000 level or higher. No more than one of these higher level courses can be used to fulfill other requirements (e.g., diversity or statistics requirements, or biochemistry option). Biochemistry CHEM 4722 can also be used toward satisfying this requirement. BIOL 4905 or BIOL 4915 can be applied to the electives requirement but two 4000 level lecture courses are still required.
Laboratory Course Requirements

Three biology laboratory courses at the 2000 level or higher are required. They may be taken from any of the lecture-laboratory or laboratory courses offered. Two credit hours of BIOL 3699, BIOL 4299, BIOL 4905, or BIOL 4915 (no combination of these courses allowed) can be used to fulfill one laboratory requirement. Students may take CHEM 4733 to satisfy one of these laboratory course requirements, but students may not use both BIOL 4713 and CHEM 4733 to fulfill this requirement.

Basic Skills Requirement

A well-rounded biologist needs certain skills outside the biology subject matter. The basic skills requirement is designed to provide the student with a background in communication skills and knowledge in associated science areas.

Communication Skills. Courses in foreign languages and in writing are required for development of the basic communication skills needed to transmit scientific information. The following satisfy this requirement:

<table>
<thead>
<tr>
<th>Foreign Language</th>
<th>Writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>The foreign language requirement of the College of Arts &amp; Sciences fulfills the departmental requirement.</td>
<td>ENGL 3160 Writing in the Sciences (strongly preferred) or ENGL 3100 Junior-Level Writing</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Hours 6
Associated Science Area

The following courses or their equivalents must be successfully completed in science areas related to biology:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYSICS 1011</td>
<td>Basic Physics I (MOTR PHYS 150L)</td>
<td>4</td>
</tr>
<tr>
<td>PHYSICS 1012</td>
<td>Basic Physics II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 1111</td>
<td>Introductory Chemistry I (MOTR CHEM)</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 1121</td>
<td>Introductory Chemistry II</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 2612</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following: 2-3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 2223</td>
<td>Quantitative Analysis</td>
</tr>
<tr>
<td>CHEM 2622</td>
<td>Organic Chemistry II</td>
</tr>
<tr>
<td>CHEM 2633</td>
<td>Organic Chemistry Laboratory</td>
</tr>
<tr>
<td>BIOL/CHEM 4712</td>
<td>Biochemistry</td>
</tr>
<tr>
<td>MATH 1310</td>
<td>Elementary Statistical Methods</td>
</tr>
<tr>
<td>MATH 1035</td>
<td>Trigonometry</td>
</tr>
<tr>
<td>MATH 1100</td>
<td>Basic Calculus</td>
</tr>
<tr>
<td>or MATH 1800</td>
<td>Analytic Geometry and Calculus I</td>
</tr>
</tbody>
</table>

Select one of the following: 3-4

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 4122</td>
<td>Biometry</td>
</tr>
<tr>
<td>MATH 1310</td>
<td>Elementary Statistical Methods</td>
</tr>
<tr>
<td>MATH 1320</td>
<td>Introduction to Probability and Statistics</td>
</tr>
</tbody>
</table>

**Total Hours** 34-36

Sign-offs from other departments affected by this proposal

None
These changes incorporate our new proposed class, BIOL 1800 into our curriculum. The development of this course is in direct response to our work on the CAP process. Our department has discussed the idea of developing a course that teaches students how to be a biology major. It would cover skills, practices, and some basic concepts that are critical to the success of all Biology majors, whether they began their career at UMSL or are transfer students. It will most likely be team taught, with a different instructor each week (once a week) introducing important information and practices to succeed at the Biology major.