

# BS in Biology

## Bachelor of Science in Biology

The B.S. degree in biology is designed to prepare students for basic technical positions and graduate studies in the life sciences. Candidates for the degree have the same core courses and general education requirements as those seeking the Bachelor of Arts degree, as well as additional requirements in depth of study, laboratory experience, communication skills, and background in associated science areas. Candidates must have a cumulative grade point average of 2.0 or better in biology courses. Effective Fall semester 2009, candidates must earn a minimum grade of C- in all core courses.

There is no foreign language requirement for the B.S. degree. However, students should realize that the literature for biological studies is in many different languages and the ability to extract information from this literature is an important skill.

To fulfill the requirements for the B.S. degree a minimum of 44 hours, but not more than 50 hours, must be completed in appropriate biology course work. A minimum of 18 22 hours at or above the 2000 level (including two laboratory courses) must be taken in residence in the UMSL Department of Biology in order to receive a B.S. 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:

BIOL 1821	Introductory Biology: Organisms And The Environment	5
BIOL 1831	Introductory Biology: From Molecules To Organisms	5
BIOL 2012	Genetics	3
BIOL 3302	Introduction To Evolution	3
BIOL 3622	Cell Biology	3

Select one of the following:		2-6
BIOL 4889	Senior Seminar	
SEC ED 4985 & BIOL 4986	Curriculum And Methods Of Teaching Life Sciences and Laboratory In Teaching Life Sciences (for those	
Select one of the following diversity courses:		3-5
BIOL 2102	General Ecology	
BIOL 2402	Vertebrate Anatomy	
BIOL 2482	Microbiology	
BIOL 2501	Biology Of Plants	
BIOL 4402	Ornithology	
BIOL 4422	Entomology	
BIOL 4501	Flowering Plant Families: Phylogeny And Diversification	
<b>Total Hours</b>		<b>24-30</b>

### Elective Courses

Four 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 and may be selected from optional academic tracks (see below). 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 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., statistics requirement 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

Four biology laboratory courses at the 2000 level or higher are required. They may be selected from any of the lecture-laboratory or laboratory courses offered. Two credit hours of BIOL 3699, 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 both formal speaking and writing are required for development of the basic communication skills needed to transmit scientific information.

Formal Speaking		
COMM 1040	Introduction To Public Speaking	3
Writing		
ENGL 3160	Writing In The Sciences (strongly preferred)	3
or ENGL 3110	Junior Level Writing For International Students	
<b>Total Hours</b>		<b>6</b>

### Associated Science Area

The following courses or their equivalents must be successfully completed:

PHYSICS 1011	Basic Physics I	4
PHYSICS 1012	Basic Physics II	4
CHEM 1111	Introductory Chemistry I	5
CHEM 1121	Introductory Chemistry II	5
CHEM 2612	Organic Chemistry I	3
CHEM 2622	Organic Chemistry II	3

CHEM 2223	Quantitative Analysis	3
MATH 1030	College Algebra	3
MATH 1035	Trigonometry	2
MATH 1100	Basic Calculus	3
or MATH 1800	Analytic Geometry And Calculus I	
Select one of the following:		3-4
BIOL 4122	Biometry	
MATH 1310	Elementary Statistical Methods	
MATH 1320	Introduction to Probability and Statistics	
<del>PSYCH 2201</del>	<del>Psychological Statistics</del>	
PHIL 2256	Bioethics	3
or PHIL 3380	Philosophy Of Science	
<b>Total Hours</b>		<b>41-42</b>

Sign-offs from other departments affected by this proposal

Department	Contact Person	Phone #	Objections
S003000	Chris Spilling	5437	No

Rationale

Statistical methods for psychology has some overlap with the statistical methods we want for our Bio majors, but not enough. We find that the practices taught in the other classes that meet this requirement are more appropriate.