

# BS in Biological Sciences with emphasis in Medical Science and Human Biology

## Degree Program Description

The emphasis in Medical Science and Human Biology will provide students with the opportunity to expand their knowledge beyond the BS in Biological Science by allowing them to take additional coursework that will help them on post-baccalaureate examinations and entry to a variety of professional programs including pre-med, veterinary medicine and health sciences.

## Major Program Requirements

Department Level Requirements (<http://catalog.missouri.edu/collegeofartsandscience/biologicalsciences/biological-sciences-major-requirements/>) must be completed in addition to all university requirements (<http://catalog.missouri.edu/academicdegreerequirements/universityrequirements/>), including general education (<http://catalog.missouri.edu/academicdegreerequirements/generaleducationrequirements/>), and the degree requirements below.

### Major Core Requirements Biology

BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
or BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory	
(Grades of A or B required for BIO_SC 1010/BIO_SC 1020)		
BIO_SC 2200	General Genetics	4
BIO_SC 2300	Introduction to Cell Biology	4
BIO_SC 3400	Evolution and Ecology	3
or BIO_SC 4600	Evolution	
BIO_SC 3700	Human Physiology	5
BIO_SC 3750	General Microbiology	3-4
or MICROB 3200	Medical Microbiology and Immunology	
BIOCHM 4270	Biochemistry	3
Capstone: Select from the following		
BIO_SC 4950 & BIO_SC 4952	Undergraduate Research in Biology and Undergraduate Research in Biology	3-6
BIO_SC 4972	Developmental Biology	3
BIO_SC 4976	Molecular Biology	3
BIO_SC 4978	Cancer Biology	3
BIO_SC 4982	Human Inherited Diseases	3
BIO_SC 4990	Vertebrate Histology and Microscopic Anatomy	5
BIO_SC 4994	Senior Seminar (only specific sections)	3
Electives:		

### Ancillary Sciences

Chemistry (all courses required)		
CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
CHEM 2100	Organic Chemistry I	3
CHEM 2110	Organic Chemistry II	3
CHEM 2130	Organic Laboratory I	2

Physical Sciences (select one set of courses)		
PHYSICS 1210 & 1210	College Physics I and College Physics I	8
PHYSICS 2750 & PHYSICS 2760	University Physics I and University Physics II	10
Mathematical Sciences (select one calculus option and one statistics option)		
MATH 1400 or MATH 1500	Calculus for Social and Life Sciences I Analytic Geometry and Calculus I	3-5
STAT 1200 or STAT 1300 or STAT 1400 or STAT 2500	Introductory Statistical Reasoning Elementary Statistics Elementary Statistics for Life Sciences Introduction to Probability and Statistics I	3

For students who elect the Foreign Language Substitute, the existing track, Medicine, Health, and Society, will be required.

### Behavioral Sciences Requirements

Choose 6 hours from the following:		
PSYCH 1000	General Psychology	3
PSYCH 2210	Mind, Brain, and Behavior	3
PSYCH 2220	Drugs and Behavior	3
PSYCH 2310	Social Psychology	3
PSYCH 2410	Developmental Psychology	3
PSYCH 2510	Survey of Psychopathology	3
PSYCH 2810	Human Sexuality	3
SOCIOL 2200	Social Inequalities	3

In addition: students will need to choose 9 hours in two subject areas from the standard list available to all A&S students

### Humanities and Fine Arts Requirements

Students will need to choose 12 hours in three subject areas from the standard list available to all A&S students, including at least one of the following courses:		
PHIL 1150	Introductory Bioethics	3
PHIL 2400	Ethics and the Professions	3
PHIL 2440	Medical Ethics	3

## Semester Plan

NOTE: These plans are intended only as general guides. Courses outside Biology and Chemistry are provided only for illustrative purposes. Advanced credit or exemption from the Second Language requirement and/or advanced credit in non-science courses, along with the interests of each individual student will determine a final combination of courses in each semester that is unique for each student. Note also that the sample schedules in Semester 5 and beyond are left incomplete on purpose because each schedule should be highly individualized at that point.

### Plan 1

#### A student that is exempt from MATH 1100

First Year	CR	Spring	CR
CHEM 1320		4 CHEM 1330	4
ENGLSH 1000		3 BIO_SC 1500	5
Behavioral Sciences Course		3 Humanities Course (2000 level)**	3
Social Sciences Course (MO State Law)		3 Social Science Course**	3

Elective	1-2		
		<b>14-15</b>	<b>15</b>
<b>Second Year</b>			
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>
CHEM 2100		3 CHEM 2110	3
BIO_SC 2200		4 CHEM 2130	2
STAT 1200		3 BIO_SC 2300	4
Second language I or Second Language Alternative		3-4 MATH 1400* <sup>See Grad Plan for Mathematical Sciences Option</sup>	3
Elective		1-2 Second language II or Second Language Alternative	3-4
		<b>14-16</b>	<b>15-16</b>
<b>Third Year</b>			
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>
BIO_SC 3700		5 PHYSCS 1220	4
PHYSCS 1210		4 BIOCHM 4270	3
Second language III or Second Language Alternative		3-4 Behavioral Science	3
Elective		3 Humanities (2000 Level)	3
		<b>15-16</b>	<b>13</b>
<b>Fourth Year</b>			
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>
Biology Capstone		3 Biology Elective- Writing Intensive	3
Biology Diversity		4 Evolutionary Biology	3
Social Science (2000 level)		3 Humanities	3
Humanities		3 Elective/FLA	3
Writing Intensive Elective		3 Elective	3
		<b>16</b>	<b>15</b>

**Total Credits: 117-122**

\*\* Could meet A&S Diversity Intensive Requirement (3 hrs).

## Plan 2

### A student that needs MATH 1100

<b>First Year</b>			
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>
BIO_SC 1500		5 CHEM 1320	4
MATH 1100		3 ENGLSH 1000	3
Behavioral Sciences Course		3 Humanities Course (2000 level)**	3
Social Sciences Course (MO State Law)		3 Social Sciences Course**	3
Elective		1 Elective	1-2
		<b>15</b>	<b>14-15</b>
<b>Second Year</b>			
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>
CHEM 1330		4 CHEM 2100	3
BIO_SC 2200		4 BIO_SC 2300	4
STAT 1200		3 MATH 1400	3
Second Language or Second Language Alternative		3-4 Second Language or Second Language Alternative	3-4
		Elective	3
		<b>14-15</b>	<b>16-17</b>

<b>Third Year</b>			
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>
BIO_SC 3700		5 PHYSCS 1210	4
CHEM 2110		3 BIOCHM 4270	3
CHEM 2130		2 Behavioral Science	3
Second Language or Second Language Alternative		3-4 Humanities (2000 level)	3
Elective		3	
		<b>16-17</b>	<b>13</b>
<b>Fourth Year</b>			
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>
Biology Capstone		3 Biology Elective- Writing Intensive	3
PHYSCS 1220		4 Evolutionary Biology	3
Social Science (2000 level)		3 Biology Diversity	4
Humanities		3 Elective/FLA	3
Writing Intensive Elective		3 Humanities	3
		<b>16</b>	<b>16</b>

**Total Credits: 120-124**

\*\* Could meet A&S Diversity Intensive Requirement (3 hrs).