

## Emphasis-Molecular, Cellular, & MicroBio

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### **B.A. in Biological Science** **Description**

A B.A. in biological science allows for a flexible course of study and can prepare a student for a variety of careers or graduate work in many fields, including medicine, dentistry, pharmacy, veterinary medicine, organismal biology, education, cell or molecular biology, ecology, and conservation biology. Students may choose from optional emphases in ecology and evolutionary biology; molecular, cellular, and microbiology; organismal biology; pre-health biological sciences. This degree also requires students to select a minor course of study from those approved by the College of Liberal Arts.

### **Minimum Total Credit Hours: 120**

### **General Education Requirements**

Requirements: See the General Education/Core Curriculum for the College of Liberal Arts. The math requirement for the B.A. in biological science is 6 hours. This may be met with two of the following courses: Math 121 or Math 125 (but not both), Math 115, Math 123, Math 261 or higher.

### **Course Requirements**

A major in biological science for the B.A. degree requires a minimum of 32 semester hours of biology credit including 24 at the 300 level or above. This requirement includes introductory courses (Bisc 160, 161, 162, 163 for 8 credit hours); biology core courses for 12 credit hours: ecology (Bisc 322), genetics (Bisc 336), and physiology (Bisc 330 or Bisc 438 or Bisc 516); biology electives for 12 credit hours minimum; and the major field achievement test (Bisc 498, which must be taken as a senior) (0 hours). Seminars and nonmajors courses do not satisfy the biology electives requirement. Chem 105, 115, 106, and 116 are required, and chemistry is a recommended minor.

Biology majors may choose to specialize by using their biology electives to add one optional emphasis, which requires a minimum of three courses from the approved list for the emphasis. The same course may not satisfy the biology core courses and an emphasis area. Students who complete relevant special topics, travel course, or research course will consult with the department prior to enrollment in the course to determine if it fulfills a course for an emphasis area.

### **Other Academic Requirements**

Students must achieve a grade of C or better in all course work counted for the major in biological science, and every biological science course requires a grade of C or better in all prerequisite courses, including those prerequisite courses from other departments. For example, Bisc 160 and 161 must be passed with a grade of C or better before Bisc 162 and 163 may be taken. In addition, Bisc 160, 161, 162, and 163 must be passed with a grade of C or better before any additional biological science course at the 300 level or above is attempted. Bisc 150, 206, 207, 210, 220, and 492 cannot be used toward a major in biological sciences.

## **Emphasis-Molecular, Cellular, & MicroBio** **Course Requirements**

### **Emphasis in Molecular, Cellular, and Microbiology:**

Requires a minimum of three courses from the following list:

- Bisc 300: Research Methods in Biology
- Bisc 306: Virology
- Bisc 333: General Microbiology
- Bisc 370: Introductory Molecular Genetics
- Bisc 372: Introductory Cell Biology
- Bisc 414: Immunology and Serology
- Bisc 418: Introduction to Molecular Systematics
- Bisc 436: Human and Vertebrate Genetics
- Bisc 438: Microbial Physiology
- Bisc 439: Developmental Biology
- Bisc 440: Cell and Molecular Biology
- Bisc 503: Topics in Bioinformatics
- Bisc 507: Cell Biology of Cancer
- Bisc 509: Microbial Genetics
- Bisc 511: Applied Microbiology
- Bisc 520: Medical Microbiology
- Bisc 521: Cell Physiology
- Bisc 522: Microbial Ecology
- Bisc 523: Molecular Microbiol. of Soils & Sediment
- Bisc 541: Cell Biol. of Neurodegenerative Disease
- Bisc 542: Microbial Diversity
- Bisc 548: Plant Cell and Developmental Biology
- Bisc 555: Radiation Biology



## Degree Requirements

The academic regulations for this degree program, as entered in the University of Mississippi Catalog, are in effect for the current or selected academic year and semester. The University of Mississippi reserves the right to 1) change or withdraw courses; 2) change rules for registration, instruction, and graduation; and 3) change other regulations affecting the student body at any time.

## B.A. in Biological Science

### General Education

REQUIREMENT	HOURS	DESCRIPTION
First Year Writing I	3	Complete <a href="#">Hon 101</a> , <a href="#">Writ 100</a> or <a href="#">Writ 101</a> with a passing grade.
First Year Writing II	3	Complete one of the following courses with a passing grade: <a href="#">Liba 102</a> , <a href="#">Writ 102</a> or <a href="#">Hon 102</a> .
6 hrs literature survey	6	Complete 6 hours of literature survey with a passing grade. Choose from the following courses: <a href="#">Eng 220</a> , <a href="#">221</a> , <a href="#">222</a> , <a href="#">223</a> , <a href="#">224</a> , <a href="#">225</a> , or <a href="#">Eng 226</a> .
6 hrs modern/ancient language 200+	6	Successfully complete at least 6 hours at the 200 level or above in one modern or ancient language.
6 hrs history	6	Complete 6 hours in History (HST) course work with a passing grade.
3 hrs humanities	3	African American studies; classical civilization; environmental studies 101, gender studies ( <a href="#">G St 201</a> , <a href="#">301</a> , <a href="#">333</a> , <a href="#">350</a> ); <a href="#">Liba 202</a> , <a href="#">305</a> , <a href="#">312</a> ; philosophy; religion; Southern studies ( <a href="#">S St 101</a> , <a href="#">102</a> ); <a href="#">Rhet 201</a> . In addition, gender studies courses that are cross-listed with African American studies, classical civilization, English, modern languages, philosophy, or religion courses will satisfy this requirement.
6 hrs social science	6	Successfully complete 6 semester hours in anthropology, economics, political science, psychology, or sociology.
3 hrs fine arts	3	Complete 3 hours in the area of fine or performing arts. Choose from art history, music, dance, and theatre arts. Studio and workshop courses cannot be used to satisfy this requirement. Acceptable freshman or sophomore-level courses are: <a href="#">AH 101</a> , <a href="#">AH 102</a> , <a href="#">AH 201</a> , <a href="#">AH 202</a> ; Music 101, Music 102, Music 103, Music 104, Music 105; Dance 200; and Theatre 201.
3 hrs math 100+	3	Successfully complete 3 hours of Math at the 100 level or above except for <a href="#">Math 245</a> and <a href="#">Math 246</a> .
9-12 hrs science	9	Courses may be chosen from astronomy, biology, chemistry, geology, <a href="#">Liba 205</a> , 205L, 150, 151, 315, 315L and physics. Two semesters of course work in one subject and one semester in a subject from another department are required. Each course must be a minimum of 3 credit hours. At least two of the courses taken must include laboratories.

### Major Requirements

REQUIREMENT	HOURS	DESCRIPTION
<a href="#">Bisc 160</a> and <a href="#">161</a>	4	<a href="#">Bisc 160: Biological Sciences I</a> , <a href="#">Bisc 161: Biological Sciences I Laboratory</a>
<a href="#">Bisc 162</a> and <a href="#">163</a>	4	<a href="#">Bisc 162: Biological Sciences II</a> , <a href="#">Bisc 163: Biological Sciences II Laboratory</a>
<a href="#">Bisc 330</a> , <a href="#">438</a> , <a href="#">516</a>	4	<a href="#">Bisc 330: Introductory Physiology</a> , <a href="#">Bisc 516: Plant Physiology</a> , <a href="#">Bisc 438: Microbial Physiology</a>
<a href="#">Bisc 322</a>	4	<a href="#">Bisc 322: General Ecology</a>
<a href="#">Bisc 336</a>	4	<a href="#">Bisc 336: Genetics</a>
<a href="#">Bisc 498</a>		<a href="#">Bisc 498: Major Field Achievement Test</a>
12 hrs electives	12	Complete a minimum of 12 credit hours of BISC electives at the 300 level or above. Directed Study ( <a href="#">Bisc 492</a> ), <a href="#">Bisc 102</a> , <a href="#">Bisc 103</a> , <a href="#">Bisc 104</a> , <a href="#">Bisc 105</a> , <a href="#">Bisc 206</a> , <a href="#">Bisc 207</a> , seminars, and non-major courses do not satisfy departmental corerequirements for biology majors.
Biology residency hrs	12	Student must earn at least 12 hours of their major courses in residence. Directed Study ( <a href="#">Bisc 492</a> ), <a href="#">Bisc 102</a> , <a href="#">Bisc 103</a> , <a href="#">Bisc 104</a> , <a href="#">Bisc 105</a> , <a href="#">Bisc 206</a> , <a href="#">Bisc 207</a> , seminars, and non-major courses do not satisfy departmental core requirements for biology majors.
Resident Major GPA		Please contact your academic advisor for grade point requirements.
Overall Major GPA		Please contact your academic advisor for grade point requirements.

### Major Requirements II

REQUIREMENT	HOURS	DESCRIPTION
<a href="#">Chem 105</a>	3	Complete <a href="#">Chem 105</a> with a passing grade.
<a href="#">Chem 106</a>	3	Complete <a href="#">Chem 106</a> with a passing grade.
<a href="#">Chem 115</a>	1	Complete <a href="#">Chem 115</a> with a passing grade.



REQUIREMENT	HOURS	DESCRIPTION
<a href="#">Chem 116</a>	1	Complete <a href="#">Chem 116</a> with a passing grade.
6 hrs math	6	The math requirement for the B.A. Biological Science may be met with two of the following courses: <a href="#">Math 121</a> (or <a href="#">Math 125</a> - but not both), <a href="#">Math 115</a> , <a href="#">123</a> , <a href="#">Math 261</a> or higher.

### **Emphasis-Molecular, Cellular, & MicroBio**

REQUIREMENT	HOURS	DESCRIPTION
3 courses Mol/Cell/Microbiology	12	Complete 3 courses with a grade of C or better chosen from the following: <a href="#">Bisc 300</a> , <a href="#">305</a> , <a href="#">306</a> , <a href="#">333</a> , <a href="#">370</a> , <a href="#">372</a> , <a href="#">414</a> , <a href="#">418</a> , <a href="#">436</a> , <a href="#">438</a> , <a href="#">439</a> , <a href="#">503</a> , <a href="#">507</a> , <a href="#">509</a> , <a href="#">511</a> , <a href="#">520</a> , <a href="#">521</a> , <a href="#">522</a> , <a href="#">523</a> , <a href="#">541</a> , <a href="#">542</a> , <a href="#">548</a> , <a href="#">555</a> , & <a href="#">Bisc 560</a> .

