

# BIOLOGICAL SCIENCES, BACHELOR OF ARTS

College of Biological Sciences

## The Biological Sciences Major

Departments of Evolution & Ecology; Microbiology & Molecular Genetics; Molecular & Cellular Biology; Neurobiology, Physiology, & Behavior; and Plant Biology

### The Program

The Biological Sciences major is broad in concept, spanning the numerous core disciplines of biology. The Bachelor of Arts (A.B.) program includes preparatory work in mathematics, general and organic chemistry, physics, and introductory level biology, as well as upper division core classes emphasizing the breadth of biological sciences. Students in the Bachelor of Arts (A.B.) program can pursue upper division coursework outside of the biological sciences. Research and internships are encouraged.

### Career Alternatives

The degree program prepares students for admission to graduate schools or professional schools, leading to either a variety of professional health careers or further study in basic and applied areas of biology. They provide suitable preparation for careers in teaching, biological and biotechnological research with various governmental agencies or private companies, government regulatory agencies, environmental consulting, biological illustration and writing, pharmaceutical sales, biological/environmental law, and biomedical engineering.

### Faculty Advisor

Lesilee Rose, Ph.D.

### Advising

Biology Academic Success Center (BASC) (<http://basc.ucdavis.edu/>) in 1023 Katherine Esau Science Hall (formerly Sciences Laboratory Building); 530-752-0410.

### Teaching Credential Subject Representative

Associate Director of Teacher Education (School of Education); see the Teaching Credential/M.A. Program (<https://education.ucdavis.edu/teaching-credentialma/>).

### Bodega Marine Laboratory Program

Students interested in Marine Biology should visit Marine & Coastal Science Major (<https://catalog.ucdavis.edu/departments-programs-degrees/earth-planetary-sciences/marine-coastal-science-bs/>) & Bodega Marine Laboratory (<http://bml.ucdavis.edu/>).

Code	Title	Units
<b>Preparatory Subject Matter</b>		
<i>Biological Science</i>		15
BIS 002A & BIS 002B & BIS 002C	Introduction to Biology: Essentials of Life on Earth and Introduction to Biology: Principles of Ecology & Evolution and Introduction to Biology: Biodiversity & the Tree of Life	

<i>Chemistry</i>		
Choose the 002 or 004 series: <sup>1</sup>		10
CHE 002A & CHE 002B	General Chemistry and General Chemistry	
CHE 004A & CHE 004B	General Chemistry for the Physical Sciences & Engineering and General Chemistry for the Physical Sciences & Engineering	
Choose the 008 or 118 series: <sup>2</sup>		6-12
CHE 008A & CHE 008B	Organic Chemistry: Brief Course and Organic Chemistry: Brief Course	
CHE 118A & CHE 118B & CHE 118C	Organic Chemistry for Health & Life Sciences and Organic Chemistry for Health & Life Sciences and Organic Chemistry for Health & Life Sciences	
<i>Mathematics</i>		
Choose the 017 or 021 series: <sup>3</sup>		8
MAT 017A & MAT 017B	Calculus for Biology & Medicine and Calculus for Biology & Medicine	
MAT 021A & MAT 021B	Calculus and Calculus	
<i>Physics</i>		
Choose the 001 or 007 series:		6-12
PHY 001A & PHY 001B	Principles of Physics and Principles of Physics	
PHY 007A & PHY 007B & PHY 007C	General Physics and General Physics and General Physics	
<i>Recommended</i>		
<i>Chemistry</i>		
CHE 002C or CHE 004C	General Chemistry General Chemistry for the Physical Sciences & Engineering	
<i>Mathematics</i>		
MAT 017C or MAT 021C	Calculus for Biology & Medicine Calculus	
Preparatory Subject Matter Subtotal		45-57
<b>Depth Subject Matter</b>		
<i>Biological Science</i>		
BIS 101	Genes & Gene Expression	4
BIS 105 or BIS 102 & BIS 103	Biomolecules & Metabolism Structure & Function of Biomolecules and Bioenergetics & Metabolism	3-6
<i>Statistics</i>		
STA 100 or STA 013 or STA 013Y	Applied Statistics for Biological Sciences Elementary Statistics Elementary Statistics	4
<i>Evolution</i>		
EVE 100	Introduction to Evolution	4
<i>Ecology</i>		
ESP 100 or EVE 101	General Ecology Introduction to Ecology	4
<i>Microbiology</i>		

Choose one:	3-4
MIC 102	Introductory Microbiology
MIC 162	General Virology
MIC 170	Yeast Molecular Genetics

*Animal Physiology, Behavior or Development*

Choose one:	3-5
BIS 104	Cell Biology
MCB 150	Developmental Biology
NPB 100	Neurobiology
NPB 101	Systemic Physiology
NPB 102	Animal Behavior
NPB 107	Cell Signaling in Health & Disease
NPB 141	(Discontinued)

*Plant Physiology or Development:*

Choose one:	3-5
PLB 105	Developmental Plant Anatomy
PLB 111	Plant Physiology
PLB 112	Plant Growth & Development
PLB 113	Molecular & Cellular Biology of Plants
PLB/PLS 116	Plant Morphology & Evolution
PLB/MCB 126	Plant Biochemistry

*Laboratory Requirement*

Choose course(s) for a minimum total of six hours/week of laboratory or field work from the list of courses below:	3-5
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Choose two with three hours lab or field work/week:

EVE 110	Running, Swimming & Flying
EVE 140	Paleobotany
EVE/ENT 180A	Experimental Ecology & Evolution in the Field
EVE/ENT 180B	Experimental Ecology & Evolution in the Field
MCB 185	Computer Programming for Biologists
MIC 103L	Introductory Microbiology Laboratory
NPB 100L	Neurobiology Laboratory
NPB 101L	Systemic Physiology Laboratory
NPB 121L	Physiology of Reproduction Laboratory
NPB 123/APC 100	Comparative Vertebrate Organology
PLB/EVE 117	Plant Ecology
PLB/EVE 119	Population Biology of Invasive Plants & Weeds

Other courses with approval of the faculty advisor.

Choose one with six hours lab or field work/week; a course may fulfill both the lab and a depth topic requirement:

BIS 180L	Genomics Laboratory
EVE 105	Phylogenetic Analysis of Vertebrate Structure
EVE 106	Mechanical Design in Organisms
EVE 112L	Biology of Invertebrates Laboratory
EVE 114	Experimental Invertebrate Biology
EXB 106L/ CHA 101L	Human Gross Anatomy Laboratory
MIC 104L	General Microbiology Laboratory
MIC 105L	Microbial Diversity Laboratory

MCB 120L	Molecular Biology & Biochemistry Laboratory
MCB 140L	Cell Biology Laboratory
MCB 160L	Principles of Genetics Laboratory
NPB 141P	(Discontinued)
PLB/PLS 102	California Floristics (Discontinued)
PLB 105	Developmental Plant Anatomy
PLB/EVE 108	Systematics & Evolution of Angiosperms (Discontinued)
PLB/PLS 116	Plant Morphology & Evolution
PLB/PLP 148	Introductory Mycology
Other courses with approval of the Faculty Advisor.	
Depth Subject Matter Subtotal	31-41
<b>Total Units</b>	<b>76-98</b>

<sup>1</sup> With BASC advisor approval, this combination also satisfies the Chemistry requirement: CHE 004A-CHE 002A (3 units w/no lab)-CHE 002B.

<sup>2</sup> With BASC advisor approval, this combination also satisfies the Organic Chemistry requirement: CHE 118A-CHE 008B.

<sup>3</sup> With BASC advisor approval, this combination also satisfies the Mathematics requirement: MAT 021A-MAT 017B; MAT 017A-MAT 021B.