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 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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td></td>
<td><strong>Preparatory Subject Matter</strong></td>
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<td><strong>Biological Science</strong></td>
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<tr>
<td><strong>Chemistry</strong></td>
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<td>CHE 002A &amp; CHE 002B</td>
<td>General Chemistry and General Chemistry</td>
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<td>General Chemistry for the Physical Sciences &amp; Engineering and General Chemistry for the Physical Sciences &amp; Engineering</td>
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<td>CHE 008A &amp; CHE 008B</td>
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<td>CHE 118A &amp; CHE 118B &amp; CHE 118C</td>
<td>Organic Chemistry for Health &amp; Life Sciences and Organic Chemistry for Health &amp; Life Sciences and Organic Chemistry for Health &amp; Life Sciences</td>
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<td><strong>Mathematics</strong></td>
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<td>MAT 021A &amp; MAT 021B</td>
<td>Calculus and Calculus</td>
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<td><strong>Physics</strong></td>
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<td>General Physics and General Physics and General Physics</td>
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<td>CHE 002C</td>
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<td>or CHE 004C</td>
<td>General Chemistry for the Physical Sciences &amp; Engineering</td>
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<td><strong>Mathematics</strong></td>
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<td>or MAT 021C</td>
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<td><strong>Preparatory Subject Matter Subtotal</strong></td>
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**Depth Subject Matter**

**Biological Science**
BIS 101 Genes & Gene Expression 4
BIS 105 or BIS 102 Biomolecules & Metabolism & BIS 103 Structure & Function of Biomolecules and Bioenergetics & Metabolism 3-6

**Statistics**
STA 100 or STA 013 Applied Statistics for Biological Sciences Elementary Statistics 4

**Evolution**
EVE 100 Introduction to Evolution 4

**Ecology**
ESP 100 General Ecology 4
or EVE 101 Introduction to Ecology

**Microbiology**
Choose one:
MIC 102 Introductory Microbiology 3-4
<table>
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<th>Course Code</th>
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<td>MIC 162</td>
<td>General Virology</td>
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<tr>
<td>MIC 170</td>
<td>Yeast Molecular Genetics</td>
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**Animal Physiology, Behavior or Development**

Choose one: 3-5 credits
- 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 Physiological Adaptation of Marine Organisms

**Plant Physiology or Development**

Choose one: 3-5 credits
- 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 credits
- 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
- 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 Physiological Adaptation of Marine Organisms/Advanced Laboratory Topics
- PLB/PLS 102 California Floristics
- PLB 105 Developmental Plant Anatomy
- PLB/EVE 108 Systematics & Evolution of Angiosperms
- 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 credits

**Total Units** 76-98 credits

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1. With BASC advisor approval, this combination also satisfies the Chemistry requirement: CHE 004A-CHE 002A (3 units w/no lab)-CHE 002B.
2. With BASC advisor approval, this combination also satisfies the Organic Chemistry requirement: CHE 118A-CHE 008B.
3. With BASC advisor approval, this combination also satisfies the Mathematics requirement: MAT 021A-MAT 017B; MAT 017A-MAT 021B.