**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**


<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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**Chemistry**

Choose the 002 or 004 series: 1  

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>CHE 002A &amp; CHE 002B</td>
<td>General Chemistry and General Chemistry</td>
<td>10</td>
</tr>
<tr>
<td>CHE 004A &amp; CHE 004B</td>
<td>General Chemistry for the Physical Sciences &amp; Engineering and General Chemistry for the Physical Sciences &amp; Engineering</td>
<td>6-12</td>
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Choose the 008 or 118 series: 2  

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<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>CHE 008A &amp; CHE 008B</td>
<td>Organic Chemistry: Brief Course and Organic Chemistry: Brief Course</td>
<td>8</td>
</tr>
<tr>
<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>
<td>6-12</td>
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**Mathematics**

Choose the 017 or 021 series: 3  

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>MAT 017A &amp; MAT 017B</td>
<td>Calculus for Biology &amp; Medicine and Calculus for Biology &amp; Medicine</td>
<td>8</td>
</tr>
<tr>
<td>MAT 021A &amp; MAT 021B</td>
<td>Calculus and Calculus</td>
<td>6-12</td>
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**Physics**

Choose the 001 or 007 series: 4  

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>PHY 001A &amp; PHY 001B</td>
<td>Principles of Physics and Principles of Physics</td>
<td>8</td>
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<tr>
<td>PHY 007A &amp; PHY 007B &amp; PHY 007C</td>
<td>General Physics and General Physics and General Physics</td>
<td>6-12</td>
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**Recommended**

Chemistry

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>CHE 002C or CHE 004C</td>
<td>General Chemistry or General Chemistry for the Physical Sciences &amp; Engineering</td>
<td>4</td>
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</tbody>
</table>

Mathematics

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>MAT 017C or MAT 021C</td>
<td>Calculus for Biology &amp; Medicine or Calculus</td>
<td>8</td>
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Preparatory Subject Matter Subtotal  45-57

**Depth Subject Matter**

**Biological Science**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>BIS 101</td>
<td>Genes &amp; Gene Expression</td>
<td>4</td>
</tr>
<tr>
<td>BIS 105</td>
<td>Biomolecules &amp; Metabolism</td>
<td>3-6</td>
</tr>
<tr>
<td>or BIS 102 &amp; BIS 103</td>
<td>Structure &amp; Function of Biomolecules and Bioenergetics &amp; Metabolism</td>
<td>3-6</td>
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**Statistics**

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<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>STA 100 or STA 013 or STA 013Y</td>
<td>Applied Statistics for Biological Sciences or Elementary Statistics or Elementary Statistics</td>
<td>4</td>
</tr>
</tbody>
</table>

**Evolution**

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<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>EVE 100</td>
<td>Introduction to Evolution</td>
<td>4</td>
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</table>

**Ecology**

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<th>Code</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>ESP 100 or EVE 101</td>
<td>General Ecology or Introduction to Ecology</td>
<td>4</td>
</tr>
</tbody>
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**Microbiology**
### Biological Sciences, Bachelor of Arts

#### Choose one:
- **MIC 102** Introductory Microbiology
- **MIC 162** General Virology
- **MIC 170** Yeast Molecular Genetics

**Animal Physiology, Behavior or Development**

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

**Plant Physiology or Development:**

**Choose one:**  
- **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:

**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
- **NBP 100L** Neurobiology Laboratory
- **NBP 101L** Systemic Physiology Laboratory
- **NBP 121L** Physiology of Reproduction Laboratory
- **NBP 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
**NBP 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**  

**Total Units**  

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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**.

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**Total Units:** 76-98