EVOLUTION, ECOLOGY & BIODIVERSITY, BACHELOR OF SCIENCE

College of Biological Sciences

The major in Evolution, Ecology & Biodiversity offers the student a broad background in the theoretical and empirical basis of our understanding of the diversity and distribution of living organisms.

The Program

The program of study for the major begins with a core of introductory courses in mathematics, physical sciences, and biology. These are followed by survey courses in biodiversity, evolution and ecology and various more specialized courses that focus the student on particular disciplines or organisms, with an emphasis on problem-solving and critical thinking. Evolution, Ecology & Biodiversity majors may earn either a Bachelor of Science or a Bachelor of Arts degree. The requirements for the B.S. degree program include more science courses, such as biochemistry, whereas those for the A.B. degree program allow room for more electives within the humanities and social sciences. The A.B. degree is especially appropriate for those students who wish to combine arts or languages with evolution and ecology for career preparation in such areas as scientific writing, translating or illustration.

Career Alternatives

A degree in Evolution, Ecology & Biodiversity prepares the student for career opportunities in research, teaching, health professions, veterinary medicine, agriculture, environmental management, and industry. Many students gain some research experience while at UC Davis and choose to continue their training at the graduate level. This track offers careers in academics, government, environmental organizations, or business.

Teaching Credential Subject Representative

Students planning for a teaching career should consult the School of Education in regards to preparation for certification; see the Teaching Credential/M.A. Program (https://education.ucdavis.edu/teaching-credentialma/)

Faculty Advisor

Laci M. Gerhart-Barley, Ph.D.

Advising

Biology Academic Success Center (BASC) (https://basc.biology.ucdavis.edu/) in 1023 Sciences Laboratory Building; 530-752-0410.

Preparatory Subject Matter

**Biological Science**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>BIS 002A</td>
<td>Introduction to Biology: Essentials of Life on Earth</td>
<td>6</td>
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<tr>
<td>&amp; BIS 002B</td>
<td>and Introduction to Biology: Principles of Ecology &amp; Evolution</td>
<td>6</td>
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<tr>
<td>&amp; BIS 002C</td>
<td>and Introduction to Biology: Biodiversity &amp; the Tree of Life</td>
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**Chemistry**

Choose the 002 series or 004 series: 1

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

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<tr>
<td>CHE 008A</td>
<td>Organic Chemistry: Brief Course</td>
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<td>&amp; CHE 008B</td>
<td>and Organic Chemistry: Brief Course</td>
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<td>or</td>
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<tr>
<td>CHE 118A</td>
<td>Organic Chemistry for Health &amp; Life Sciences</td>
<td>6</td>
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<tr>
<td>&amp; CHE 118B</td>
<td>and Organic Chemistry for Health &amp; Life Sciences</td>
<td>6</td>
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<tr>
<td>&amp; CHE 118C</td>
<td>and Organic Chemistry for Health &amp; Life Sciences</td>
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**Mathematics**

Choose the 017 or 021 series: 3

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<tbody>
<tr>
<td>MAT 017A</td>
<td>Calculus for Biology &amp; Medicine</td>
<td>6</td>
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<td>&amp; MAT 017B</td>
<td>and Calculus for Biology &amp; Medicine</td>
<td>6</td>
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<td>&amp; MAT 017C</td>
<td>and Calculus for Biology &amp; Medicine</td>
<td>6</td>
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<td>or</td>
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<tr>
<td>MAT 021A</td>
<td>Calculus</td>
<td>6</td>
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<tr>
<td>&amp; MAT 021B</td>
<td>and Calculus</td>
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<td>&amp; MAT 021C</td>
<td>Calculus (Recommended)</td>
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**Physics**

12

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<tr>
<td>PHY 007A</td>
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<td>&amp; PHY 007B</td>
<td>and General Physics</td>
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<td>&amp; PHY 007C</td>
<td>and General Physics</td>
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Preparatory Subject Matter Subtotal 56-66

Depth Subject Matter

**Biological Science**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>BIS 101</td>
<td>Genes &amp; Gene Expression</td>
<td>4</td>
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<tr>
<td>BIS 104</td>
<td>Cell Biology</td>
<td>3</td>
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<tr>
<td>BIS 105</td>
<td>Biomolecules &amp; Metabolism</td>
<td>3</td>
</tr>
<tr>
<td>or BIS 102</td>
<td>Structure &amp; Function of Biomolecules</td>
<td>3</td>
</tr>
<tr>
<td>&amp; BIS 103</td>
<td>and Bioenergetics &amp; Metabolism</td>
<td>3</td>
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**Evolution & Ecology**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>EVE 100</td>
<td>Introduction to Evolution</td>
<td>4</td>
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<tr>
<td>EVE 101</td>
<td>Introduction to Ecology</td>
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**Statistics**

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<tr>
<td>STA 100</td>
<td>Applied Statistics for Biological Sciences</td>
<td>4</td>
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<tr>
<td>or STA 130A</td>
<td>Mathematical Statistics: Brief Course</td>
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<tr>
<td>&amp; STA 130B</td>
<td>and Mathematical Statistics: Brief Course</td>
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Areas of Study

Choose additional upper division restricted electives in biological science relevant to the student’s interest chosen in consultation with a BASC advisor to achieve a total of 49 or more units, at least one of the courses taken to fulfill these requirements must include a 6 hour per week laboratory or field component or two courses with a 3 hour per week laboratory or field component.

1,

2,

3,
Include at least one course from the Biodiversity area of study and two courses from the Advanced Evolution & Ecology areas of study below.

(1) Biodiversity (p. 2)
(2) Advanced Evolution & Ecology (p. 2)

Note: A maximum of 4 units of variable-unit courses (numbered 192, 198, 199) may be applied to upper division elective unit requirements, but not to the upper division laboratory requirement. Courses numbered 197T are not applicable to the upper division elective unit requirement.

Depth Subject Matter Subtotal: 42-56

Total Units: 98-122

1 With BASC advisor approval, these combinations also satisfy the Chemistry requirement: CHE 004A-CHE 002A (3 units w/no lab)-CHE 002B-CHE 002C; OR CHE 004A-CHE 004B-CHE 002C

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 017C; OR MAT 017A-MAT 021B

### (1) Biodiversity Area of Study

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>ENT 107</td>
<td>California Insect Diversity</td>
<td>5</td>
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<tr>
<td>EVE 105</td>
<td>Phylogenetic Analysis of Vertebrate Structure</td>
<td>4</td>
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<tr>
<td>EVE 108</td>
<td>Systematics &amp; Evolution of Angiosperms</td>
<td>5</td>
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<tr>
<td>EVE 112</td>
<td>Biology of Invertebrates</td>
<td>3</td>
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<tr>
<td>EVE 114</td>
<td>Experimental Invertebrate Biology</td>
<td>3</td>
</tr>
<tr>
<td>EVE 140</td>
<td>Paleobotany</td>
<td>4</td>
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<tr>
<td>MIC 105</td>
<td>Microbial Diversity</td>
<td>3</td>
</tr>
<tr>
<td>NEM 110</td>
<td>Introduction to Nematology</td>
<td>2</td>
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<tr>
<td>PLB 116</td>
<td>Plant Morphology &amp; Evolution</td>
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<tr>
<td>PLB 148</td>
<td>Introductory Mycology</td>
<td>4</td>
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<tr>
<td>PLS 147</td>
<td>California Plant Communities</td>
<td>3</td>
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<tr>
<td>WFC 110</td>
<td>Biology &amp; Conservation of Wild Mammals</td>
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<tr>
<td>WFC 111</td>
<td>Biology &amp; Conservation of Wild Birds</td>
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<tr>
<td>WFC 120</td>
<td>Biology &amp; Conservation of Fishes</td>
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<tr>
<td>WFC 134</td>
<td>Herpetology</td>
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### (2) Advanced Evolution & Ecology Area of Study

<table>
<thead>
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<tbody>
<tr>
<td>EVE 102</td>
<td>Population &amp; Quantitative Genetics</td>
<td>4</td>
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<tr>
<td>EVE 103</td>
<td>Phylogeny, Speciation &amp; Macroevolution</td>
<td>4</td>
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<tr>
<td>EVE 104</td>
<td>Community Ecology</td>
<td>4</td>
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<tr>
<td>EVE 106</td>
<td>Mechanical Design in Organisms</td>
<td>3</td>
</tr>
<tr>
<td>EVE 107</td>
<td>Animal Communication</td>
<td>4</td>
</tr>
<tr>
<td>EVE 110</td>
<td>Running, Swimming &amp; Flying</td>
<td>3</td>
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<tr>
<td>EVE 115</td>
<td>Marine Ecology</td>
<td>4</td>
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<tr>
<td>EVE 117</td>
<td>Plant Ecology</td>
<td>4</td>
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<tr>
<td>EVE 119</td>
<td>Population Biology of Invasive Plants &amp; Weeds</td>
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<tr>
<td>EVE 120</td>
<td>Global Change Ecology</td>
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<tr>
<td>EVE 131</td>
<td>Human Genetic Variation &amp; Evolution</td>
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<tr>
<td>EVE 138</td>
<td>Ecology of Tropical Latitudes</td>
<td>5</td>
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<tr>
<td>EVE 141</td>
<td>Principles of Systematics</td>
<td>3</td>
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<tr>
<td>EVE 147</td>
<td>Biogeography</td>
<td>4</td>
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<tr>
<td>EVE 149</td>
<td>Evolution of Ecological Systems</td>
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<tr>
<td>EVE 150</td>
<td>Evolution of Animal Development</td>
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<tr>
<td>EVE 161</td>
<td>Microbial Phylogenomics; Genomic Perspectives on the Diversity &amp; Diversification of Microbes</td>
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<tr>
<td>EVE 175</td>
<td>Computational Genetics</td>
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<tr>
<td>EVE 180A &amp; EVE 180B</td>
<td>Experimental Ecology &amp; Evolution in the Field &amp; Experimental Ecology &amp; Evolution in the Field</td>
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<tr>
<td>EVE 181</td>
<td>Ecology &amp; Evolution of Animal-Plant Interactions</td>
<td>4</td>
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