

# EVOLUTION, ECOLOGY & BIODIVERSITY, BACHELOR OF ARTS

## 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.

## Faculty Advisor

Laci M. Gerhart, Ph.D.

## Advising

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

## 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/>).

The major requirements below are in addition to meeting University Degree Requirements (<https://catalog.ucdavis.edu/undergraduate-education/university-degree-requirements/>) & College Degree Requirements (<https://catalog.ucdavis.edu/undergraduate-education/college-degree-requirements/>); unless otherwise noted. The minimum number of units required for the Evolution, Ecology & Biodiversity Bachelor of Arts is 76.

| Code                              | Title | Units |
|-----------------------------------|-------|-------|
| <b>Preparatory Subject Matter</b> |       |       |
| <i>Biological Science</i>         |       | 15    |

|                                      |                                                                                                                                                                                        |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BIS 002A<br>& BIS 002B<br>& BIS 002C | Introduction to Biology: Essentials of Life on Earth<br>and Introduction to Biology: Principles of Ecology & Evolution<br>and Introduction to Biology: Biodiversity & the Tree of Life |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                    |                                                                                                                             |       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-------|
| <i>Chemistry</i>                                                                                                                                                                                   |                                                                                                                             |       |
| Choose the 002 series or 004 series and 008 series:                                                                                                                                                |                                                                                                                             | 16    |
| CHE 002A<br>& CHE 002B                                                                                                                                                                             | General Chemistry<br>and General Chemistry                                                                                  |       |
| <b>OR</b>                                                                                                                                                                                          |                                                                                                                             |       |
| CHE 004A<br>& CHE 004B                                                                                                                                                                             | General Chemistry for the Physical Sciences & Engineering<br>and General Chemistry for the Physical Sciences & Engineering  |       |
| <b>AND</b>                                                                                                                                                                                         |                                                                                                                             |       |
| CHE 008A<br>& CHE 008B                                                                                                                                                                             | Organic Chemistry: Brief Course<br>and Organic Chemistry: Brief Course                                                      |       |
| <i>Mathematics</i>                                                                                                                                                                                 |                                                                                                                             |       |
| Choose the MAT 017 series, the MAT 021 series, or STA 100: <sup>1</sup>                                                                                                                            |                                                                                                                             | 4-8   |
| MAT 017A<br>& MAT 017B<br>& MAT 017C                                                                                                                                                               | Calculus for Biology & Medicine<br>and Calculus for Biology & Medicine<br>and Calculus for Biology & Medicine (Recommended) |       |
| <b>OR</b>                                                                                                                                                                                          |                                                                                                                             |       |
| MAT 021A<br>& MAT 021B<br>& MAT 021C                                                                                                                                                               | Calculus<br>and Calculus<br>and Calculus (Recommended)                                                                      |       |
| <b>OR</b>                                                                                                                                                                                          |                                                                                                                             |       |
| STA 100                                                                                                                                                                                            | Applied Statistics for Biological Sciences                                                                                  |       |
| <i>Physics</i>                                                                                                                                                                                     |                                                                                                                             |       |
| PHY 001A                                                                                                                                                                                           | Principles of Physics                                                                                                       | 3     |
| PHY 001B                                                                                                                                                                                           | Principles of Physics                                                                                                       | 3     |
| Preparatory Subject Matter Subtotal                                                                                                                                                                |                                                                                                                             | 41-45 |
| <b>Depth Subject Matter</b>                                                                                                                                                                        |                                                                                                                             |       |
| <i>Biological Science</i>                                                                                                                                                                          |                                                                                                                             |       |
| BIS 101<br>or BIS 101V                                                                                                                                                                             | Genes & Gene Expression<br>Genes & Gene Expression                                                                          | 4     |
| Choose one:                                                                                                                                                                                        |                                                                                                                             | 3-4   |
| EVE 100                                                                                                                                                                                            | Introduction to Evolution                                                                                                   |       |
| GEL 107                                                                                                                                                                                            | Earth History: Paleobiology                                                                                                 |       |
| ANT 151                                                                                                                                                                                            | Primate Evolution                                                                                                           |       |
| Choose one:                                                                                                                                                                                        |                                                                                                                             | 4     |
| EVE 101                                                                                                                                                                                            | Introduction to Ecology                                                                                                     |       |
| ESP 100                                                                                                                                                                                            | General Ecology                                                                                                             |       |
| WFC 151                                                                                                                                                                                            | Wildlife Ecology                                                                                                            |       |
| <i>Areas of Study</i>                                                                                                                                                                              |                                                                                                                             |       |
| 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 36 or more units. |                                                                                                                             | 24-25 |
| Include at least one course from each of the areas of study below.                                                                                                                                 |                                                                                                                             |       |
| (1) Biodiversity (p. 2)                                                                                                                                                                            |                                                                                                                             |       |
| (2) Advanced Evolution & Ecology (p. 2)                                                                                                                                                            |                                                                                                                             |       |

|                               |              |
|-------------------------------|--------------|
| Depth Subject Matter Subtotal | 35-37        |
| <b>Total Units</b>            | <b>76-82</b> |

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With BASC advisor approval, this combination also satisfies the Mathematics requirement: MAT 021A-MAT 017B or MAT 017A-MAT 021B

## (1) Biodiversity Area of Study

| Code                                                | Title                                                        | Units |
|-----------------------------------------------------|--------------------------------------------------------------|-------|
| EVE 105                                             | Phylogenetic Analysis of Vertebrate Structure (Discontinued) | 4     |
| ENT 107                                             | California Insect Diversity                                  | 5     |
| EVE 108/<br>PLB 108 DISCONTINUED FOR WINTER 2024 ** | (Discontinued for winter 2024) **                            | 5     |
| EVE 112                                             | Biology of Invertebrates                                     | 3     |
| EVE 114                                             | Experimental Invertebrate Biology                            | 3     |
| EVE 140                                             | Paleobotany (Discontinued)                                   | 4     |
| MIC 105                                             | Microbial Diversity                                          | 3     |
| NEM 110                                             | Introduction to Nematology                                   | 2     |
| PLB/PLS 116                                         | Plant Morphology & Evolution                                 | 5     |
| PLB/PLP 148                                         | Introductory Mycology                                        | 4     |
| PLS 147                                             | California Plant Communities                                 | 3     |
| WFC 110                                             | Biology & Conservation of Wild Mammals                       | 3     |
| WFC 111                                             | Biology & Conservation of Wild Birds                         | 3     |
| WFC 120                                             | Biology & Conservation of Fishes                             | 3     |
| WFC 134                                             | Herpetology                                                  | 3     |

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Course(s) discontinued; see your advisor for course options.

## (2) Advanced Evolution & Ecology Area of Study

| Code        | Title                                          | Units |
|-------------|------------------------------------------------|-------|
| EVE 102     | Population & Quantitative Genetics             | 4     |
| EVE 103     | Phylogeny, Speciation & Macroevolution         | 4     |
| EVE 104     | Community Ecology                              | 4     |
| EVE 106     | Mechanical Design in Organisms (Discontinued)  | 3     |
| EVE 107     | Animal Communication                           | 4     |
| EVE 110     | Running, Swimming & Flying (Discontinued)      | 3     |
| EVE 115     | Marine Ecology                                 | 4     |
| EVE/PLB 117 | Plant Ecology                                  | 4     |
| EVE/PLB 119 | Population Biology of Invasive Plants & Weeds  | 3     |
| EVE 120     | Global Change Ecology                          | 3     |
| EVE 131     | Human Genetic Variation & Evolution            | 3     |
| EVE 138     | Ecology of Tropical Latitudes (Discontinued)   | 5     |
| EVE 141     | Principles of Systematics (Discontinued)       | 3     |
| EVE 147     | Biogeography                                   | 4     |
| EVE 149     | Evolution of Ecological Systems (Discontinued) | 4     |

|                                                     |                                                                                              |   |
|-----------------------------------------------------|----------------------------------------------------------------------------------------------|---|
| EVE 150                                             | Evolution of Animal Development (Discontinued)                                               | 3 |
| EVE 161                                             | Microbial Phylogenomics; Genomic Perspectives on the Diversity & Diversification of Microbes | 3 |
| EVE 175                                             | Computational Genetics                                                                       | 3 |
| Choose EVE 180A or ENT 180A & EVE 180B or ENT 180B: |                                                                                              | 8 |
| EVE/ENT 180A                                        | Experimental Ecology & Evolution in the Field                                                |   |
| EVE/ENT 180B                                        | Experimental Ecology & Evolution in the Field                                                |   |
| EVE 181                                             | Ecology & Evolution of Animal-Plant Interactions                                             | 4 |