WILDLIFE, FISH & CONSERVATION BIOLOGY, BACHELOR OF SCIENCE

College of Agricultural & Environmental Sciences

The Major Program

The Wildlife, Fish & Conservation Biology major deals with the relationships between the requirements of wildlife and the needs of people. Understanding these relationships is vital for the maintenance of ecological diversity, recreational resources, and food supplies. Students completing the major possess a broad knowledge of ecology and natural history, but with the quantitative skills to use this knowledge in critical thinking and decision-making.

The Program

The major emphasizes broad training in biological sciences, with specialization in one of four areas. The major is designed primarily for students interested in becoming professionals in the diverse fields of wildlife, fish, & conservation biology, including veterinary & wildlife health sciences. The breadth of course requirements, when combined with electives, also make this an excellent preparatory major for secondary school teaching. Certification by professional societies such as The Wildlife Society, American Fisheries Society, or the Ecological Society of America, or preparation for graduate studies may also be achieved by careful planning of electives with a faculty advisor.

Lead Faculty Advisor
Douglas Kelt

Wildlife, Fish, & Conservation Biology Major Advisor
Erica Cefalo

Students transferring to UC Davis from another institution or new students declaring the major of Wildlife, Fish & Conservation Biology must consult the major advisor so that their program can be evaluated and a faculty advisor assigned. Advising is located in 1086 Academic Surge and can be reached by email at wfcbadvising@ucdavis.edu.

Career Alternatives

The major prepares students to excel in the dynamic fields of environmental and conservation biology, emphasizing vertebrate animals—both native and invasive—in their natural environments, as well as resolution of conflicts between humans and wild animals. Positions now held by graduates of this major include wildlife biology, fisheries biology, wildlife damage management, and resource biologists and managers with local, state, and federal agencies, biologists or consultants with private industries such as environmental consulting firms, commercial fishing businesses, electrical utilities, sporting clubs or businesses, and aquaculture operations, as well as veterinarians, medical physicians, and professors/researchers who teach and/or conduct research in academic institutions.

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>UWP 001</td>
<td>Introduction to Academic Literacies</td>
<td>4</td>
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<tr>
<td>or UWP 001V</td>
<td>Introduction to Academic Literacies: Online</td>
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<tr>
<td>or UWP 001Y</td>
<td>Introduction to Academic Literacies</td>
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<tr>
<td>CMN 001</td>
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<tr>
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<td>Interpersonal Communication Competence</td>
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<td>or CMN 003V</td>
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<td>DRA 010</td>
<td>Introduction to Acting</td>
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<td>Written/Oral Expression Subtotal</td>
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Preparatory Subject Matter

Biological Science

- BIS 002A | Introduction to Biology. Essentials of Life on Earth | 5 |
- BIS 002B | Introduction to Biology. Principles of Ecology & Evolution | 5 |
- BIS 002C | Introduction to Biology. Biodiversity & the Tree of Life | 5 |

Chemistry

- CHE 002A | General Chemistry | 5 |
- CHE 002B | General Chemistry | 5 |
- CHE 008A | Organic Chemistry: Brief Course | 2 |
- CHE 008B | Organic Chemistry: Brief Course | 4 |

Mathematics

- MAT 016A | Short Calculus | 3 |
- MAT 016B | Short Calculus | 3 |

Physics

- PHY 001A | Principles of Physics | 3 |
- PHY 001B | Principles of Physics | 3 |

Choose one: |
- PLS 120 | Applied Statistics in Agricultural Sciences | |
- STA 100 | Applied Statistics for Biological Sciences | |
- WFC 103 | Applied Statistics for Wildlife Research | |

Wildlife, Fish & Conservation Biology

Choose one: |
- WFC 010 | Wildlife Ecology & Conservation | 3-4 |
- WFC 050 | Natural History of California's Wild Vertebrates | |
- WFC 051 | Introduction to Conservation Biology | |

Preparatory Subject Matter Subtotal | 50-51 |

Depth Subject Matter

Students graduating with this major are required to attain at least a C average (2.000) in all courses taken at the university in depth and area of specialization subject matter.

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<tr>
<th>Code</th>
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<tr>
<td>ESP 100</td>
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<tr>
<td>or EVE 101</td>
<td>Introduction to Ecology</td>
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<tr>
<td>NPB 102</td>
<td>Animal Behavior</td>
<td>3-4</td>
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<tr>
<td>or WFC 141</td>
<td>Behavioral Ecology</td>
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</table>

Evolution & Ecology

- EVE 100 | Introduction to Evolution | 4 |

Wildlife, Fish, & Conservation Biology

Choose WFC 100 or WFC 101 & WFC 101L or WFC 102 & WFC 102L | 4-7 |

Written/Oral Expression

Completing UWP 001 or UWP 001V or UWP 001Y and CMN 001 will simultaneously satisfy the College English Composition Requirement.
WFC 100  Field Methods in Wildlife, Fish, & Conservation Biology

OR

WFC 101  Field Research in Wildlife Ecology and Field Research in Wildlife Ecology: Laboratory

OR

WFC 102  Field Studies in Fish Biology and Field Studies in Fish Biology: Laboratory

WFC 121  Physiology of Fishes

WFC 122  Population Dynamics & Estimation

WFC 124  Sampling Animal Populations

WFC 154  Conservation Biology

Choose three lecture courses and two laboratory (L) courses: 14-15

WFC 110  Biology & Conservation of Wild Mammals

WFC 110L  Laboratory in Biology & Conservation of Wild Mammals

WFC 111  Biology & Conservation of Wild Birds

WFC 111L  Laboratory in Biology & Conservation of Wild Birds

WFC 120  Biology & Conservation of Fishes

WFC 120L  Laboratory in Biology & Conservation of Fishes

WFC 134  Herpetology

WFC 134L  Herpetology Laboratory

Depth Subject Matter Subtotal  41-46

Strongly Recommended, But Not Required

Anatomy, Physiology & Cell Biology

APC 100/NPB 123  Comparative Vertebrate Organology

Landscape Architecture

LDA/ABT 150  Introduction to Geographic Information Systems

Statistics; choosing one is recommended:

STA 104  Applied Statistical Methods: Nonparametric Statistics

STA 106  Applied Statistical Methods: Analysis of Variance

STA 108  Applied Statistical Methods: Regression Analysis

Restricted Electives

Choose one of the four Areas of Specialization: 12-24

No course may be used to simultaneously satisfy the Depth Subject Matter and the Area of Specialization.

No course may be used to simultaneously satisfy two Area of Specialization requirements.

Areas of Specialization

(1) Wildlife & Conservation Biology (p. 2)
(2) Fish Biology (p. 2)
(3) Wildlife Health (p. 3)
(4) Individualized (p. 3)

Restricted Electives Subtotal  12-24

Total Units  111-129

Areas of Specialization

(1) Wildlife & Conservation Biology

Code  Title  Units

WFC 151  Wildlife Ecology  4

or WFC 168  Climate Change Ecology  2-5

Choose one:

PLB/PLS 102  California Floristics (Discontinued)

PLB/EVE 108  Systematics & Evolution of Angiosperms (Discontinued)

PLB/EVE 117  Plant Ecology

PLB/EVE 119  Population Biology of Invasive Plants & Weeds

PLB/PLP 148  Introductory Mycology

PLS 131  (Discontinued)

PLS/ESM 144  Trees & Forests

PLS 147 & 147L  California Plant Communities and California Plant Communities Field Study

PLS 178  Biology & Management of Aquatic Plants

Choose two:

WFC 110  Biology & Conservation of Wild Mammals  6-9

WFC 111  Biology & Conservation of Wild Birds

WFC 120  Biology & Conservation of Fishes

WFC 122  Population Dynamics & Estimation

WFC 124  Sampling Animal Populations

WFC 125  Tropical Ecology & Conservation

WFC 134  Herpetology

WFC 136  Ecology of Waterfowl & Game Birds

WFC 152  Ecology of Human-Wildlife Conflicts

WFC 156  Plant Geography

WFC 157  Coastal Ecosystems

WFC 160  Animal Coloration

WFC 168  Climate Change Ecology

Note: Students interested in certification as a Wildlife Biologist from The Wildlife Society should consider additional courses in plant sciences and statistics.

Total Units  12-18

(2) Fish Biology

Code  Title  Units

Fish Biology

WFC 120  Biology & Conservation of Fishes  3

WFC 120L  Laboratory in Biology & Conservation of Fishes  2

Choose one:

ENT 116  (Discontinued)

EVE 112 & EVE 112L or EVE 114:

EVE 112  Biology of Invertebrates

& 112L and Biology of Invertebrates Laboratory

or EVE 114  Experimental Invertebrate Biology

Total Units  12-18
Choose three courses including at least one course from each of the following two groups:

(a) Aquatic Systems
- ANS 118 Fish Production
- ESM 100 Principles of Hydrologic Science
- ESP/GEL 116N Oceanography
- ESP/GEL 150C Biological Oceanography
- ESP 151 Limnology
- ESP 151L Limnology Laboratory
- ESP 152 Coastal Oceanography
- ESP 155 Wetland Ecology
- EVE 115 Marine Ecology
- HYD 143 Ecological Hydrology
- WFC 155 Wildlife Space Use & Habitat Conservation

(b) Water Policy/Law
- ESP 161 Environmental Law
- ESP 162 Environmental Policy
- ESP 166N (Discontinued)
- ESP 169 Water Policy & Politics
- HYD 150 Water Law

Total Units 17-23

(3) Wildlife Health

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Choose BIS 102 & BIS 103 or ABI 102 & ABI 103:

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<td>&amp; ABI 103</td>
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<tr>
<td>BIS 102</td>
<td>Structure &amp; Function of Biomolecules</td>
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<tr>
<td>&amp; BIS 103</td>
<td>and Bioenergetics &amp; Metabolism</td>
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<tr>
<td>WFC 144</td>
<td>Marine Conservation Science</td>
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<td>WFC 152</td>
<td>Ecology of Human-Wildlife Conflicts</td>
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<td>WFC 168</td>
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<tr>
<td>ANS 104</td>
<td>Principles &amp; Applications of Domestic Animal Behavior</td>
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Additional Preparatory

Recommended, not required:

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<td>PHY 007C</td>
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Total Units 16-24

(4) Individualized

Students may, with prior approval of their advisor and the curriculum committee, design their own individualized specialization within the major. The specialization will consist of at least four upper division courses with a coherent theme.