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.

Code	Title	Units
Written/Oral Expression		
Completing UWP 001 or UWP 001V or UWP 001Y and CMN 001 will simultaneously satisfy the College English Composition Requirement.		
UWP 001	Introduction to Academic Literacies	4
or UWP 001V	Introduction to Academic Literacies: Online	
or UWP 001Y	Introduction to Academic Literacies	
Choose one:		4
CMN 001	Introduction to Public Speaking	
CMN 003	Interpersonal Communication Competence	
or CMN 003V	Interpersonal Communication Competence	
or CMN 003Y	Interpersonal Communication Competence	
DRA 010	Introduction to Acting	
Written/Oral Expression Subtotal		8
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:		4
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:		3-4
WFC 010	Wildlife Ecology & Conservation	
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.		
ESP 100	General Ecology	4
or EVE 101	Introduction to Ecology	
NPB 102	Animal Behavior	3-4
or WFC 141	Behavioral Ecology	
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

WFC 100	Field Methods in Wildlife, Fish, & Conservation Biology	
OR		
WFC 101 & 101L	Field Research in Wildlife Ecology and Field Research in Wildlife Ecology: Laboratory	
OR		
WFC 102 & 102L	Field Studies in Fish Biology and Field Studies in Fish Biology: Laboratory	
WFC 121	Physiology of Fishes	4
or WFC 130	Physiological Ecology of Wildlife	
WFC 122	Population Dynamics & Estimation	4
or WFC 124	Sampling Animal Populations	
Conservation Biology		
WFC 154	Conservation Biology	4
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	
Choose one:		2-5
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:		6-9
WFC 110	Biology & Conservation of Wild Mammals	
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:		3-5
ENT 116	(Discontinued)	
EVE 112 & EVE 112L or EVE 114:		
EVE 112 & 112L	Biology of Invertebrates and Biology of Invertebrates Laboratory	
or EVE 114	Experimental Invertebrate Biology	

Choose three courses including at least one course from each of the following two groups:		9-13
(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	Ecohydrology	
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

Code	Title	Units
Note that this Areas of Specialization recommends additional preparatory courses; prerequisites for admission to Veterinary Medicine vary among schools and students should confirm the specific requirements of the school(s) to which they wish to apply.		
WFC 151	Wildlife Ecology	4
Choose BIS 102 & BIS 103 or ABI 102 & ABI 103:		6-10
ABI 102 & ABI 103	Animal Biochemistry & Metabolism and Animal Biochemistry & Metabolism	
or		
BIS 102 & BIS 103	Structure & Function of Biomolecules and Bioenergetics & Metabolism	
Choose one:		3-5
WFC 110	Biology & Conservation of Wild Mammals	
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 141	Behavioral Ecology	
WFC 144	Marine Conservation Science	
WFC 152	Ecology of Human-Wildlife Conflicts	
WFC 168	Climate Change Ecology	
Choose one:		3-5
ANS 103	Animal Welfare	
ANS 104	Principles & Applications of Domestic Animal Behavior	
ANS 170	Ethics of Animal Use	
APC 100	Comparative Vertebrate Organology	
MCB 150	Developmental Biology	
MIC 101	Introductory Microbiology (Discontinued)	
MIC 102	Introductory Microbiology	
MIC 103L	Introductory Microbiology Laboratory	
NPB 101	Systemic Physiology	
NPB 140	Principles of Environmental Physiology	
VME 158	Infectious Disease in Ecology & Conservation	
Additional Preparatory		
Recommended, not required:		
BIS 101	Genes & Gene Expression	
CHE 002C	General Chemistry	
CHE 118A	Organic Chemistry for Health & Life Sciences	
CHE 118B	Organic Chemistry for Health & Life Sciences	
CHE 118C	Organic Chemistry for Health & Life Sciences	
PHY 007A	General Physics	
PHY 007B	General Physics	
PHY 007C	General Physics	
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.