

## WFCB Bachelors of Science (BS) Requirements\*



**Wildlife, Fish, and Conservation Biology (WFCB)** is an ecologically oriented major that addresses the interactions of humans with animals in both natural and disturbed environments. Students are trained in the basic sciences, mathematics, and the biology and conservation of vertebrates in California and in many other parts of the world. The emphasis on basic sciences provides our students with the intellectual flexibility to handle the varied and often unexpected problems faced by biologists in the field and laboratory. It also makes sure students are prepared for graduate and professional schools and for alternative careers.

### Preparatory Subject Matter Requirements (2020–2021)

Preparatory Subject Matter	(57-59 Units)	Quarter(s) Offered***	Units	Completed	Notes
<b>Written Expression</b>					
University Writing Program 1	Expository Writing	I, II, III, IV	4	_____	_____
<b>Oral Expression</b> ( <i>Choose one of the following</i> )					
Note: Of the below courses, only CMN 1 additionally satisfies the College Composition requirement.					
Communication 1	Introduction to Public Speaking	I, II, III, IV	4	_____	_____
Communication 3	Interpersonal Communication Competence	I, II, III	4	_____	_____
Dramatic Art 10	Introduction to Acting	I, II, III	3	_____	_____
<b>Chemistry</b>					
Chemistry 2A	General Chemistry	I, II, IV	5	_____	_____
Chemistry 2B	General Chemistry	II, III, IV	5	_____	_____
Chemistry 8A	Organic Chemistry	I, III, IV	2	_____	_____
Chemistry 8B	Organic Chemistry	I, II, IV	4	_____	_____
<b>Biological Sciences</b>					
BIS 2A	Introductory Biology	I, II, III, IV	5	_____	_____
BIS 2B	Introductory Biology	I, II, III, IV	5	_____	_____
BIS 2C	Introductory Biology	I, II, III, IV	5	_____	_____
<b>Mathematics</b>					
Mathematics 16A	Short Calculus	I, II, III, IV	3	_____	_____
Mathematics 16B	Short Calculus	I, II, III, IV	3	_____	_____
<b>Physics</b>					
Physics 1A	Principles of Physics	I, II	3	_____	_____
Physics 1B	Principles of Physics	II, III	3	_____	_____
<b>Statistics</b> ( <i>Choose one of the following</i> )					
WFC 103	Applied Statistics for Wildlife Research	II	4	_____	_____
Statistics 100	Applied Statistics for Bio Sciences	I, II, III, IV	4	_____	_____
Plant Sciences 120	Applied Statistics in Ag Science	I	4	_____	_____
<b>Wildlife &amp; Conservation</b> ( <i>Choose one of the following</i> )					
WFC 10	Wildlife Ecology and Conservation	I, III	4	_____	_____
WFC 50	Natural History of CA Vertebrates	II	3	_____	_____

+This checklist is for guidance purposes. Other courses may be listed in course catalog but are not shown here because they are offered irregularly. Last updated 5/8/20.

I = fall quarter, II = winter quarter, III = spring quarter, IV = summer session

\*\*\*Course offerings are subject to change. Check with your adviser for the most updated listings.

## Depth Subject Matter Requirements

NOTE: Students graduating with this major are required to attain at least a C average (2.0 GPA) in all courses taken at the university in Depth Subject Matter and Area of Specialization and pass all coursework. See requirements of the College in the UCD General Catalog.

Depth Subject Matter	(45-50 Units)	Prerequisites	Qtr(s)	Units	Completed
<b>Ecology</b> ( <i>Choose one of the following</i> )					
ESP 100	General Ecology	BIS 2A-C; MAT 16A-B; STA 13 recommended	I, II, IV	4	_____
EVE 101	Introduction to Ecology	BIS 2A-C; MAT 16A-B (or equiv.)	I, II, III, IV	4	_____
<b>Evolution</b>					
EVE 100	Introduction to Evolution	BIS 2ABC, MAT 16AB or 17AB or 21AB, STA 100 recommended	I, II, III, IV	4	_____
<b>Physiology</b>					
WFC 130	Physiological Ecology	EVE 101 or ESP 100 or equivalent	II	4	_____
<b>Animal Behavior</b> ( <i>Choose one of the following</i> )					
NPB 102	Animal Behavior	BIS 2A-C	II, III, IV	3	_____
WFC 141	Behavioral Ecology	EVE 101 or ESP 100 or equivalent	II	4	_____
<b>Conservation Biology</b>					
WFC 154	Conservation Biology	BIS 2B or equivalent	II	4	_____
<b>Quantitative Ecology</b> ( <i>Choose one of the following</i> )					
WFC 122	Population Dynamics and Estimation	MAT16A-B; STA13 or equiv; EVE 101, ESP 100, or equiv	II	4	_____
WFC 124	Sampling Animal Populations	ESP 100 or EVE 101; WFC 103 or STA 100 or PLS 120	III	4	_____
<b>Organismal Core</b> ( <i>Choose 3 lecture courses and 2 laboratory courses</i> )					
WFC 110	Biology & Conservation of Wild Mammals	BIS 2A-C; EVE 101 or ESP 100 or equivalent	III	3	_____
WFC 110L	Lab in Biology & Conservation of Wild Mammals	WFC 110 (may be concurrent); consent of instructor	III	3	_____
WFC 111	Biology & Conservation of Wild Birds	BIS 2A-C, upper division ecology recommended	I	3	_____
WFC 111L	Lab in Biology & Conservation of Wild Birds	WFC 111 (may be concurrent); consent of instructor	I	3	_____
WFC 120	Biology & Conservation of Fishes	BIS 2ABC, upper division ecology recommended	I	3	_____
WFC 120L	Lab in Biology & Cons of Fishes	WFC 120 (may be concurrent)	I	2	_____
WFC 134	Herpetology	BIS 2ABC, upper division ecology recommended	II	3	_____
WFC 134L	Herpetology Laboratory	WFC 134 concurrently	II	3	_____
<b>Research Methods</b> ( <i>Choose one of the following</i> )					
WFC 100	Field Methods in Wildlife, Fish, & Cons. Bio	BIS 2ABC, EVE 101 or ESP 100	III	4	_____
WFC 101/L <sup>even</sup>	Field Research in Wildlife Ecology + Lab	Consent of instructor; ESP 100 or EVE 101; WFC 103 or STA 100 or PLS 120; WFC 110 or WFC 111 or WFC 134	I	2/4	_____
WFC 102/L <sup>odd</sup>	Field Research in Fish Ecology + Lab	Consent of instructor; ESP 100 or EVE 101; WFC 103 or STA 100 or PLS 120; WFC 120; one aquatic biology course	III	1/6	_____
<b>GIS Technology</b> ( <i>Strongly recommended, but not required</i> )					
ABT/LDA 150	Geographic Info Systems	PLS 21 or equivalent with consent of instructor	I	4	_____
<b>Anatomy</b> ( <i>Strongly recommended, but not required</i> )					
APC 100	Comparative Organology of Vertebrates	BIS 2A-B	II	4	_____
<b>Statistics</b> ( <i>Strongly recommended, but not required</i> )					
STA 104 <sup>odd</sup>	Nonparametric Statistics	STA 13, 32, or 100	II	4	_____
STA 106	Analysis of Variance	STA 13, 32, or 100	I, II, IV	4	_____
STA 108	Regression Analysis	STA 13, 32, or 100	I, II, III, IV	4	_____

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<sup>odd</sup> Course is offered in odd years only (2021, 2023, etc.)

<sup>even</sup> Course is offered in even years only (2020, 2022, etc.)

\* Complete a major modification petition to use this course until its addition is formally recognized by campus.

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††Future availability or timing unknown



## Wildlife and Conservation Biology

Required Courses	Prerequisites	Qtr(s)	Units	Completed
<b>Complete Wildlife Ecology</b>				
WFC 151 Wildlife Ecology	BIS 2A-B	I	4	_____
<b>Choose one Plants course</b>				
Note: Students interested in certification as a Wildlife Biologist from The Wildlife Society need 13.5 units in botany.				
PLS/PLB 102 California Floristics	PLS 2 or BIS 2C or equivalent	III	5	_____
PLS 131 <sup>odd</sup> Identification and Ecology of Grasses	BIS 2C, PLB 102 recommended, must be available in summer for field work	III	2	_____
PLS 144 Trees and Forests	PLS 2 or BIS 2C or equivalent	I	4	_____
PLS 147/L California Plant Communities + Lab	PLS 2 or BIS 2C or equivalent	III	3/1	_____
PLS 178 <sup>odd</sup> Biology & Management of Aquatic Plants	PLS 2 or BIS 2C; CHE 8B or 118B	I	3	_____
PLB 108 Systematics & Evolution of Angiosperms	BIS 2A-C	III	5	_____
PLB/EVE 117 Plant Ecology	BIS 2A-C; PLB 111 recommended	I	4	_____
PLB 119 Population Biology of Weeds	BIS 2ABC, introductory STA course recommended	III	3	_____
PLB 148 Introductory Mycology	BIS 2A-C	I	4	_____
<b>Choose two Wildlife courses</b>				
Note: A course cannot be used to simultaneously satisfy a depth and area of specialization requirement.				
WFC 110 Biology & Conservation of Wild Mammals	BIS 2A-C; EVE 101 or ESP 100 or equivalent	III	3	_____
WFC 111 Biology & Conservation of Wild Birds	BIS 2A-C, upper division ecology recommended	I	3	_____
WFC 120 Biology & Conservation of Fishes	BIS 2A-C, upper division ecology recommended	I	3	_____
WFC 122 Population Dynamics and Estimation	MAT16A-B; STA13 or equiv; EVE 101, ESP 100, or equiv	II	4	_____
WFC 124 Sampling Animal Populations	ESP 100 or EVE 101; WFC 103 or STA 100 or PLS 120	III	4	_____
WFC 125 <sup>even</sup> Tropical Ecology and Conservation	ESP 100 or EVE 101 or equivalent	I	4	_____
WFC 134 Herpetology	BIS 2A-C, upper division ecology recommended	II	3	_____
WFC 136 <sup>even</sup> Ecology of Waterfowl & Game Birds	WFC 111, 111L, or equivalent, or consent of instructor	II	3	_____
WFC 137* <sup>even</sup> Applied Fisheries Conservation	WFC 120/L or WFC 110/L or WFC 111/L or WFC 134/L	III	3	_____
WFC 152 <sup>odd</sup> Ecology of Human-Wildlife Conflicts	BIS 002B; Or equivalent	II	3	_____
WFC 168 Climate Change Ecology	BIS 2B or equivalent	II	4	_____

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# Fish Biology



## Why study Fish Biology?

Fish are the most diverse of all vertebrates, plus they are a major source of healthy food for the world's people. You really need no other reason to study them. Actually, the fish biology option is more of an aquatic biology option with an emphasis on fish. The curriculum prepares you for jobs with fisheries and conservation agencies, as well as for graduate school in diverse areas of aquatic biology. Internships and independent studies are encouraged, to gain experience while you are in school. Students in this option get wet on occasion and get to feel slime produced by a wiggling fish in their hands. Try it; you will like it.

Required Courses	Prerequisites	Qtr(s)	Units	Completed
WFC 120/L	Biology & Conservation of Fishes	I	3	_____
	Lab in Biology & Cons of Fishes	I	2	_____
<b>Choose one Invertebrates course</b>				
EVE 112/L <sup>even</sup>	Biology of Invertebrates	II	3	_____
	Biology of Invertebrates: Lab	II	2	_____
ENT 116	Biology of Aquatic Insects	III	3	_____
EVE 114	Experimental Invertebrate Biology	IV	3	_____

## **Choose three courses between Aquatic Systems and Water Policy/Law courses, with at least one from each category**

### ***Aquatic Systems courses***

ANS 118 <sup>††</sup>	Fish Production	WFC 120 and 121	II	4	_____
ESM 100	Principles of Hydrologic Science	CHE 2B; Math 16B; PHY 7A or 9A	I	4	_____
ESP 116N <sup>even</sup>	Oceanography	GEL 1, 2, 16, or 50	II	3	_____
ESP 150C	Biological Oceanography	BIS 2A; course in general ecology	IV	4	_____
ESP 151 <sup>††</sup>	Limnology	BIS 2A; junior standing		4	_____
ESP 151L <sup>††</sup>	Limnology Laboratory	ESP 151 concurrently		3	_____
ESP 152	Coastal Oceanography	Bodega Course. Upper division standing, PHY 9B and MAT 21B	IV	3	_____
ESP 155	Wetland Ecology	BIS 2A, ESP 100 or EVE 101 recommended	I	4	_____
EVE 115 <sup>odd</sup>	Marine Ecology	EVE 101 or ESP 100 or BIS 2B	II	4	_____
HYD 143 <sup>even</sup>	Hydrological Processes in Ecosystems	HYD 141 or ESM 100	II	3	_____
WFC 137* <sup>even</sup>	Applied Fisheries Conservation	WFC 120/L or WFC 110/L or WFC 111/L or WFC 134/L	III	3	_____

### ***Water Policy/Law course***

HYD 150	Water Law	upper division standing or consent of instructor	II	3	_____
ESP 161	Environmental Law	Upper division standing; one course in env. science	III	4	_____
ESP 162	Environmental Policy	ECN 1A	II	4	_____
ESP 166N*	Ocean and Coastal Policy	ESP 1 or consent of instructor	II	3	_____
ESP 169**	Water policy and politics	ECN 1A; POL 1	III	4	_____

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## Wildlife Health

Required Courses		Prerequisites	Qtr(s)	Units	Completed
<b>Complete Wildlife Ecology</b>					
WFC 151	Wildlife Ecology	BIS 2A-B	I	4	_____
<b>Complete either BIS 102/103 or ABI 102/103</b>					
BIS 102	Structure & Function of Biomolecules	BIS 2A; CHE 8B, 118B, or 128B	I, II, III, IV	3	_____
BIS 103	Bioenergetics & Metabolism	BIS 102	I, II, III, IV	3	_____
ABI 102	Animal Biochemistry & Metabolism	CHE 2A-B; CHE 8A-B or CHE 118A-B	I	5	_____
ABI 103	Animal Biochemistry & Metabolism	ABI 102	II	5	_____
<b>Choose one Wildlife course</b>					
Note: A course cannot be used to simultaneously satisfy a depth and area of specialization requirement.					
WFC 110	Biology & Conservation of Wild Mammals	BIS 2A-C; EVE 101 or ESP 100 or equivalent	III	3	_____
WFC 111	Biology & Conservation of Wild Birds	BIS 2ABC, upper division ecology recommended	I	3	_____
WFC 120	Biology & Conservation of Fishes	BIS 2ABC, upper division ecology recommended	I	3	_____
WFC 122	Population Dynamics and Estimation	MAT16A-B; STA13 or equiv; EVE 101, ESP 100, or equiv	II	4	_____
WFC 124	Sampling Animal Populations	ESP 100 or EVE 101; WFC 103 or STA 100 or PLS 120	III	4	_____
WFC 125 <sup>even</sup>	Tropical Ecology and Conservation	ESP 100 or EVE 101 or equivalent	I	4	_____
WFC 134	Herpetology	BIS 2ABC, upper division ecology recommended	II	3	_____
WFC 136 <sup>even</sup>	Ecology of Waterfowl & Game Birds	WFC 111, 111L, or equivalent, or consent of instructor	II	3	_____
WFC 137* <sup>even</sup>	Applied Fisheries Conservation	WFC 120/L or WFC 110/L or WFC 111/L or WFC 134/L	III	3	_____
WFC 168	Climate Change Ecology	BIS 2B or equivalent	II	4	_____
WFC 152 <sup>odd</sup>	Ecology of Human-Wildlife Conflicts	BIS 002B; Or equivalent	II	3	_____
<b>Choose one General course</b>					
ANS 103	Animal Welfare	ANS 104 or NPB 102 or WFC 141	I	4	_____
ANS 170	Ethics of Animal Use	Any basic course in composition or speech	III	4	_____
NPB 101	Systemic Physiology	BIS 2A and CHE 2B, PHY 1B or 7C strongly recommended	I, II, III, IV	5	_____
MCB 150	Developmental Biology	BIS 101	II	4	_____
MIC 102	Introductory Microbiology	BIS 2A, CHE 2B	I, II, III	3	_____
MIC 103L	Introductory Microbiology Laboratory	MIC 102 C- or better; CHE 002B	I, II, III	2	_____
ANS 104	Principles of Domestic Animal Behavior	ANS 2 or BIS 2B	I	4	_____
APC 100	Comparative Organology of Vertebrates	BIS 2A-B	I	4	_____
NPB 140	Principles of Environmental Physiology	NPB 101; BIS 102 recommended	II	3	_____
VME 158 <sup>even</sup>	Infectious Diseases in Ecology & Conservation	EVE 101 or ESP 100	II	3	_____
MIC 101	Introductory Microbiology	BIS 2A, CHE 2B	II	5	_____

This AOS also recommends extra preparatory courses; pre-requisites for admission into Veterinary Medicine vary among schools and students should confirm the specific requirements of the schools to which they wish to apply. We recommend that the following additional courses be considered:

BIS 101	Genes and Gene Expression
CHE 2C	General Chemistry
CHE 118A-C	Organic Chemistry for Health & Life Sciences <i>Note: Some schools may accept CHE 8A-B; individual schools will vary</i>
PHY 7A-C	General Physics <i>Note: some schools may accept PHY 1A-B; individual schools will vary</i>

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