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 (2015-16)

Preparatory Subject Matter	(57-59 Units)	Quarter(s) Offered***	Units	Completed	Notes
Written Expression					
University Writing Program 1	Expository Writing	I, II, III, IV	4	_____	_____
Oral Expression *(Choose one of the following)*					
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	_____	_____
Chemistry					
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	_____	_____
Biological Sciences					
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	_____	_____
Mathematics					
Mathematics 16A	Short Calculus	I, II, III, IV	3	_____	_____
Mathematics 16B	Short Calculus	I, II, III, IV	3	_____	_____
Physics					
Physics 1A	Principles of Physics	I	3	_____	_____
Physics 1B	Principles of Physics	II	3	_____	_____
Statistics *(Choose one of the following)*					
Statistics 100	Applied Statistics for Bio Sciences	I, II, III, IV	4	_____	_____
Plant Sciences 120	Applied Statistics in Ag Science	I	4	_____	_____
Wildlife & Conservation *(Choose one of the following)*					
WFC 10	Wildlife Ecology and Conservation	I, III	4	_____	_____
WFC 50	Natural History of CA Vertebrates	II	3	_____	_____
WFC 11	Introduction to Conservation Biology	III	3	_____	_____

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††Future availability unknown

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
Ecology *(Choose one of the following)*					
ESP 100	General Ecology	BIS 2A-C; MAT 16A-B; STA 13 recommended	I, II	4	_____
EVE 101	Introduction to Ecology	BIS 2A-C; MAT 16A-C (or equiv.)	I, II, III, IV	4	_____
Genetics					
BIS 101	Genes and Gene Expression	BIS 2A-C (2C may be concurrent); CHE 8B (may be concurrent)	I, II, III, IV	4	_____
Evolution					
EVE 100	Introduction to Evolution	BIS 2A-C; BIS 101; MAT 16A-C or equiv; STA 13 or 100	I, II, III, IV	4	_____
Physiology					
WFC 130	Physiological Ecology	EVE 101 or ESP 100 or equivalent	II	4	_____
Animal Behavior *(Choose one of the following)*					
NPB 102	Animal Behavior	BIS 2A-C	II, III, IV	3	_____
WFC 141**	Behavioral Ecology	EVE 101 or ESP 100 or equivalent	II	4	_____
Conservation Biology					
WFC 154	Conservation Biology	EVE 101 or ESP 100 or equivalent	I	4	_____
Population Biology					
WFC 122	Population Dynamics and Estimation	MAT16A-B; STA13 or equiv; EVE 101, ESP 100, or equiv	III	4	_____
Organismal Core *(Choose 3 lecture courses and 2 laboratory courses)*					
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; EVE 101 or ESP 100 or equivalent	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 2A-C	I	3	_____
WFC 120L	Lab in Biology & Cons of Fishes	WFC 120 (may be concurrent)	I	2	_____
WFC 134*	Herpetology	BIS 2A-C; EVE 101, ESP 100 or equivalent rec.	II	3	_____
WFC 134L*	Herpetology Laboratory	WFC 134 concurrently	II	3	_____
Research Methods *(Choose one of the following)*					
WFC 100	Field Methods in Wildlife, Fish, & Cons. Bio	EVE 101 or ESP 100 or equivalent; consent of instructor	III	4	_____
WFC 101/L**	Field Research in Wildlife Ecology + Lab	Consent of instructor & 1 upper division course in ecology, statistics, and ornithology, mammalogy, or herpetology	I	2/4	_____
GIS Technology *(Strongly recommended, but not required)*					
ABT/LDA 150	Geographic Info Systems	PLS 21 or equivalent with consent of instructor	I	4	_____
Anatomy *(Strongly recommended, but not required)*					
APC 100	Comparative Organology of Vertebrates	BIS 2A-B	II	4	_____
Statistics *(Strongly recommended, but not required)*					
STA 104*	Nonparametric Statistics	STA 13, 32, or 102	II	4	_____
STA 106	Analysis of Variance	STA 13, 32, or 102	I, II, IV	4	_____
STA 108	Regression Analysis	STA 13, 32, or 102	I, II, III, IV	4	_____

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Wildlife and Conservation Biology 2015-16

Required Courses		Prerequisites	Qtr(s)***	Units	Completed
Complete Wildlife Ecology					
WFC 151	Wildlife Ecology	BIS 2A-B	I	4	_____
Choose one Plants course					
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*	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	I	4	_____
PLS 147/L	California Plant Communities + Lab	BIS 2A or 2B or 2C; MCB 10 rec	III	3/1	_____
PLS 178*	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 2A-C	III	3	_____
PLB 148	Introductory Mycology	BIS 2A-C	I	4	_____
Choose one Wildlife course					
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; EVE 101 or ESP 100 or equivalent	I	3	_____
WFC 120	Biology & Conservation of Fishes	BIS 2A-C	I	3	_____
WFC 134*	Herpetology	BIS 2A-C; EVE 101, ESP 100 or equivalent rec.	II	3	_____
WFC 136**	Ecology of Waterfowl & Game Birds	WFC 111, 111L, or equivalent, or consent of instructor	II	3	_____
WFC 152*	Ecology of Human-Wildlife Conflicts	BIS 2A-C or the equivalent	II	3	_____
WFC 141**	Behavioral Ecology	EVE 101 or ESP 100 or equivalent	II	4	_____
WFC 144**	Marine Conservation Science	a course in ecology	II	4	_____
WFC 155/L††	Habitat Conservation & Restoration + Lab	EVE 101 or ESP 100 or equivalent; WFC 154 & ENH 160 recommended	II	3/2	_____
WFC 160**	Animal Coloration	BIS 2A-C	II	3	_____
WFC 156††	Plant Geography	EVE 101 or ESP 100 or equivalent; PLB 102 or 108 strongly recommended		4	_____
WFC 157††	Coastal Ecosystems	EVE 101, ESP 100 or equiv; course work in organismal bio, phys geography, & geology rec		4	_____
Choose one General course (continued on next page)					
Note: A course cannot be used to simultaneously satisfy two area of specialization requirements.					
ABT/LDA 150	Introduction to Geographic Info Systems	PLS 21 or equivalent with consent of instructor	I	4	_____

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ANS 103	Animal Welfare	ANS 104 or NPB 102 or the equivalent or consent of instructor	I	4	_____
ANS 104	Principles of Domestic Animal Behavior	BIS 2A or 2B or equivalent	II	4	_____
ANS 170	Ethics of Animal Use	Any basic course in composition or speech	III	4	_____
ENH 160	Restoration Ecology	PLB 117, EVE 121, PLB 147, or equiv.	III	3	_____
ENT 156	Biology of Parasitism	BIS 2A or consent of instructor	III	3	_____
ESP 121	Population Ecology	BIS 2B-C; Math 16A-B	II	4	_____
EVE 115*	Marine Ecology	EVE 101, ESP 100, BIS 2A or consent of instructor	II	4	_____
ESP 127††	Plant Conservation Biology	EVE 101 or ESP 100 or equivalent	II	4	_____
ESP 155	Wetland Ecology	ESP 100 or PLB 117; ESP 110 or 151 recommended	I	4	_____
ESP 162	Environmental Policy	ECN 1A	II	4	_____
ESP 166N*	Ocean and Coastal Policy	ESP 1 or consent of instructor	II	3	_____
ESP 161	Environmental Law	1 course in Environmental Science (ex: ESP 1, 10, 110, BIS 2A or ETX 10)	III	4	_____
ESP 171	Urban and Regional Planning	ESP 1 & 1 course in Environmental Science and Social Science	III	4	_____
ESP 170*	Conservation Biology Policy	ESP 1; ECN 1A;	III	4	_____
ETX 101	Principles of Environmental Toxicology	CHE 8B,118B, or 128B; BIS 2A	I	4	_____
EVE 107*	Animal Communication	BIS 2B; animal behavior course (NPB 102, PSY 101, ANS 104, ENT 104, or equivalent) ECN 100 or ARE 100A recommended	I	4	_____
EVE 147*	Biogeography	BIS 2B	I	4	_____
EVE 138*	Ecology of Tropical Latitudes	One course in BIS, ENT, WFC, GEO, tropical experience or consent of instructor	III	5	_____
PLS 130††	Rangelands: Ecology Conservation, & Restoration	BIS 2C; introductory ecology course and junior standing recommended	II	3	_____
PLS 135††	Ecology and Community Structure of Grassland and Savannah Herbivores	BIS 2A-C	II	3	_____
PLS 162	Urban Ecology	A course in plant ecology	II	3	_____

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Fish Biology 2015-16

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	BIS 2A-C	I	3	_____
	Lab in Biology & Cons of Fishes	WFC 120 (may be concurrent)	I	2	_____
Choose one Invertebrates course					
EVE 112/L**	Biology of Invertebrates	BIS 2B-C	II	3	_____
	Biology of Invertebrates: Lab	EVE 112 concurrently	II	2	_____
ENT 116	Biology of Aquatic Insects	BIS 2B or the equivalent	III	3	_____
EVE 114	Experimental Invertebrate Biology	Bodega Course. BIS 2A-C, upper division standing	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††	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**	Oceanography	GEL 1, 2, 16, or 50	II	3	_____
ESP 150C	Biological Oceanography	BIS 2A; course in general ecology or consent of instructor	IV	4	_____
ESP 151††	Limnology	BIS 2A; junior standing		4	_____
ESP 151L††	Limnology Laboratory	ESP 151 concurrently		3	_____
ESP 152	Coastal Oceanography	Bodega Course. Upper division standing, physics, calc	IV	3	_____
ESP 155	Wetland Ecology	ESP 100 or PLB 117	I	4	_____
EVE 115*	Marine Ecology	EVE 101, ESP 100, BIS 2A or consent of instructor	II	4	_____
HYD 143**	Hydrological Processes in Ecosystems	HYD 141 or ESM 100	II	3	_____
WFC 144**	Marine Conservation Science	a course in ecology	II	4	_____
WFC 155/L††	Habitat Conservation & Restoration + Lab	EVE 101 or ESP 100 or equivalent; WFC 154 & ENH 160 recommended	II	3/2	_____
WFC 157††	Coastal Ecosystems	EVE 101, ESP 100 or equiv; course work in organismal bio, phys geography, & geology rec		4	_____
WFC 160**	Animal Coloration	BIS 2A-C	II	3	_____
Water Policy/Law course					
HYD 150	Water Law	ESM 100 or 121 or consent of instructor	II	3	_____
ESP 161	Environmental Law	Upper division standing; one course in env. science (i.e.: ESP 1, 10, 110, BIS 2A, ETX 10, or ESM 100)	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 2015-16

Required Courses		Prerequisites	Qtr(s)***	Units	Completed
Complete Wildlife Ecology					
WFC 151	Wildlife Ecology	BIS 2A-B	I	4	_____
Complete either BIS 102/103 or ABI 102/103					
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	I	5	_____
ABI 103	Animal Biochemistry & Metabolism	ABI 102	II	5	_____
Choose one Wildlife course					
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; EVE 101 or ESP 100 or equivalent	I	3	_____
WFC 120	Biology & Conservation of Fishes	BIS 2A-C	I	3	_____
WFC 134*	Herpetology	BIS 2A-C; EVE 101, ESP 100 or equivalent rec.	II	3	_____
WFC 136**	Ecology of Waterfowl & Game Birds	WFC 111, 111L, or equivalent, or consent of instructor	II	3	_____
WFC 141**	Behavioral Ecology	EVE 101 or ESP 100 or equivalent	II	4	_____
WFC 144**	Marine Conservation Science	a course in ecology	II	4	_____
WFC 152*	Ecology of Human-Wildlife Conflicts	BIS 2A-C or the equivalent	II	3	_____
WFC 155/L[††]	Habitat Conservation & Restoration	EVE 101 or ESP 100 or equivalent; WFC 154 & ENH 160 recommended	II	3	_____
	Habitat Conservation & Restoration: Lab	WFC 155 (may be concurrent)	II	2	_____
WFC 160**	Animal Coloration	BIS 2A-C	II	3	_____
Choose one General courses					
ANS 103	Animal Welfare	ANS 104 or NPB 102 or the equivalent	I	4	_____
ANS 170	Ethics of Animal Use	Any basic course in composition or speech	III	4	_____
NPB 101	Systemic Physiology	BIS 2B; CHE 2B; PHY 1B or 7C strongly rec.	I, II, III, IV	5	_____
MCB 150	Developmental Biology	BIS 101; MCB 150L concurrently	I	4	_____
MIC 104	General Microbiology	BIS 101, 102, and 103	I	4	_____
MIC 101	Introductory Microbiology	BIS 2A and CHE 2B	I, II, III	5	_____
ANS 104	Principles of Domestic Animal Behavior	BIS 2A or 2B or equivalent	II	4	_____
APC 100	Comparative Organology of Vertebrates	BIS 2A-B	II	4	_____
NPB 140	Principles of Environmental Physiology	NPB 101; BIS 102 recommended	II	3	_____
VME 158**	Infectious Diseases in Ecology & Conservation	EVE 101 or ESP 100 or equivalent	II	3	_____

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:

CHE 2C General Chemistry
CHE 118A-C Organic Chemistry for Health & Life Sciences *Note: Some schools may accept CHE 8A-B; individual schools will vary*
PHY 7A-C General Physics *Note: some schools may accept PHY 1A-B; individual schools will vary*

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