

Ecology, Biodiversity, & Conservation

Why study ecology, biodiversity, and conservation?

The Ecology, Biodiversity and Conservation Track aims to give students a broad ecological training that prepares them to be field ecologists, organismal biologists (biodiversity specialists) or conservation specialists. It trains students for working for public agencies or private companies, and serves as preparation for graduate school in a variety of environmental biology disciplines. A series of foundation courses are required, including upper division statistics, physical environmental sciences, public policy, evolution, genetics, biogeography, and a field course for hands on field experience of hypothesis testing in nature. The track then allows students to specialize in options in Organismal Biology and Biodiversity, Ecology, or Conservation. UC Davis has more ecologists than any other institution in the World, and this track draws on this rich human resource.



Preparatory Subject Matter Requirements

Preparatory Subject Matter		Quarter(s) Offered	Units	Completed	Notes
Written and Oral Expression					
UWP 101, or any from the 102 or 104 series	Upper Division Writing Communication	F, W, S, Su	4	_____	<u>May test out of requirement</u>
CMN 1, 3V, 3Y, or DRA 10		F, W, S, Su	4	_____	_____
Biological Sciences					
<i>Complete either BIS2ABC or BIO1/1L/2/2L/3</i>					
BIS 2A	Essentials of Life on Earth	F, W, S, Su	5	_____	_____
BIS 2B	Principles of Ecology and Evolution	F, W, S, Su	5	_____	_____
BIS 2C	Biodiversity and the Tree of Life	F, W, S, Su	5	_____	_____
BIO 1/1L	Ecology & Evolution / Lab	F, W, S, Su	4/1	_____	_____
BIO 2/2L	Molecules to Cells / Lab	F, W, S, Su	4/1	_____	_____
BIO 3	Cells through Organisms	F, W, S, Su	4	_____	_____
++Any course that lists BIS2A as a pre-requisite can use BIO 2, any course that lists BIS 2B as a pre-requisite can use BIO 1+1L, and any class that lists BIS 2C as a pre-requisite can use BIO 3					
Geology					
<i>Choose one of the following</i>					
GEL 1	The Earth	F, W, S	3	_____	_____
GEL 50 (recommended)	Physical Geology	W, S	3	_____	_____
Chemistry					
CHE 2A or 2AH	General Chemistry	F, W, S, Su	5	_____	_____
CHE 2B or 2BH	General Chemistry	F, W, S, Su	5	_____	_____
Physics					
<i>Complete either PHY1AB or PHY7ABC</i>					
PHY 1A and 1B	General Physics	F, W, S, Su	3, 3	_____	_____
PHY 7A, 7B, and 7C	General Physics	F, W, S, Su	4, 4, 4	_____	_____
Economics					
ECN1A/1AV/AY	Principles of Microeconomics	F, W, S, Su	4	_____	_____
Mathematics					
MAT 17A and 17B	Calculus for Biology & Medicine	F, W, S, Su	4, 4	_____	_____
MAT 19A and 19B and 19C	Calculus for Data-Driven Applications	F, W, S, Su	4, 4, 4	_____	MAT 17AB recommended
MAT 21A and 21B	Calculus	F, W, S, Su	4, 4	_____	_____
Environmental Science and Policy					
ESP 1	Environmental Analysis	F, Su	4	_____	_____

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Core 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* pass all coursework. See requirements of the College of Agriculture & Environmental Science in the UC Davis General Catalog.

Depth Subject Matter	Prerequisites	Qtr(s)	Units	Completed
Global Environment				
ESM 120 Global Environmental Interactions	One college-level chemistry and biology course	W	4	_____
Ecology				
<i>(Choose one of the following)</i>				
ESP 100 General Ecology	BIS 2A-C; MAT 16A-B or 17A-B or 21A-B; STA 13 recommended	F, W, Su	4	_____
EVE 101 Introduction to Ecology	BIS 2A-C; MAT 16A-B or 17A-B or 21A-B; or equivalent	F, W, S, Su	4	_____
Policy				
ESP 162 Environmental Policy	ECN 1A or ECN 1AV or ECN 1AY	W	4	_____
Statistics				
<i>(Choose one of the following – Statistics 100 recommended)</i>				
STA 13 Elementary Statistics	Two years of high school algebra or equivalent in college	F, W, S, Su	4	_____
STA 100 Applied Statistics for Biological Sciences	MAT 16B or 17B or 21B with a C- or better	F, W, S, Su	4	_____
Environmental Monitoring				
<i>(Choose one of the following)</i>				
ATM 124 Meteorological Instruments & Observations	ATM 60	F	3	_____
ESM 108 Environmental Monitoring	ESP 100 or EVE 101 or SSC 100 or WFC 100 or equivalent	S	3	_____
ESP 151L Limnology Lab	ESP 151 (can be concurrent)	S	3	_____
ESP 179 Environmental Impact Assessment	ESP 1 or the equivalent	W, Su	4	_____
Environmental Data Science				
<i>(Choose one of the following)</i>				
ABT/LED 150 Introduction to GIS	None	F, W, S	4	_____
ESP 106 Environmental Data Science	STA 13 or 32 or 100 (can be concurrent)	W	4	_____
Internship				
ESM/ESP 92/192 Internship	Upper division standing, permission of instructor Variable unit – must take at least 3 units of internship in total May complete internship in a different area with prior approval (e.g.: PLS, SSC, ATM)	F, W, S, Su	3	_____
Capstone				
ESM 195 Integrating Env Science & Management	Senior standing in ESM	S	2	_____
Honors Thesis <i>(Optional)</i>				
ESM 194H Senior Honors Thesis	Senior standing, Overall GPA of 3.50 or higher; Consent of the lead faculty advisor	F, W, S, Su	2-6	_____

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Courses appearing in more than one section can only be used to fulfill one section

Ecology, Biodiversity, & Conservation

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Select one physical processes course					
ATM 60	Introduction to Atmospheric Science	MAT 16A or 21A; PHY 7A or 9A	F	4	_____
ATM 116	Modern Climate Change	None	F	3	_____
ATM 133	Biometeorology	MAT 16B; one course in a biological discipline or consent of instructor	W	4	_____
ESM 121	Water Science & Management	PHY 10 or GEL 1	S	3	_____
ESM 131	Air as a Resource	CHE 2A or 10; CHE 2B	W	3	_____
ESP 152	Coastal Oceanography	Acceptance into the Bodega Marine Lab summer program	Su	3	_____
HYD 143**	Echohydrology	HYD 141 or ESP 1 or ESM 108 or ESM 120 or GEL 1 or 50 or SSC 100	W	4	_____
SSC 100	Principles of Soil Science	College-level course in each of CHE, PHY, BIS, and GEL rec	F	5	_____
GEL 134	Environmental Geology & Land Use Planning	GEL 1 or 50	W, S	3	_____
Select one environmental policy course					
ESP 161	Environmental Law	One course in environmental science or political science recommended	F, S	4	_____
ESP 166	Ocean & Coastal Policy	ESP 1 or consent of instructor	F	3	_____
ESP 168A	Methods of Env Policy Evaluation	ESP 1 or ESP 10; STA 13 or 100; ECN 1A; ECN 100A recommended	F	5	_____
ESP 169**	Water Policy & Politics	ECN 1A or POL 1 recommended	F	3	_____
ESP 171	Urban & Regional Planning	ESP 1 or ESP 161 or ESP 179 recommended	S	3	_____
ESP 172	Public Lands Management	ESP 1 or ESP 161 or ESP 179 recommended	S, Su	4	_____
ESP 174	Environmental Justice Policy & Practice	ECN 1A and POL 1 recommended	F	4	_____
ESP 179	Environmental Impact Assessment	ESP 1 or the equivalent recommended	S	4	_____
ESP 179	Environmental Impact Assessment	ESP 1 or the equivalent	W, Su	4	_____
SOC 160	Sociology of the Environment	SOC 1 or 2 or 3 recommended	Varies	4	_____
Evolution					
EVE 100	Introduction to Evolution	BIS 2A-C; MAT 16A, 17A, or 21A; MAT 16B, 17B, or 21B; STA 100 rec	F, W, S, Su	4	_____
Select on conservation biology course					
WFC 154	Conservation Biology	BIS 2B or equivalent	W	4	_____
ESP 170	Conservation Biology Policy	ESP 1 or WFC 11 or WFC 154 or POL 1 recommended	F	4	_____
Select one field methods course					
ENH 160/L	Restoration Ecology Lab	ESP 100 or 121 or 155 or EVE 101 or 117 or 119 or PLS 162 or 130	W	4/1	_____
ESP 123**	Intro to Field & Lab Methods in Ecology	ESP 100 or EVE 101 or equivalent; STA 13 or 100 or equivalent	S	4	_____
ESP 124	Marine and Coastal Field Ecology	Application required: entails residency at the Bodega Marine Lab leading up to fall quarter	Su	3	_____
ESP 151L	Limnology Laboratory	ESP 151 (can be concurrent)	S	3	_____
EVE/ENT 180A*	Exp Ecology & Evolution in the Field	MUST take <i>both</i> EVE/ENT 180A <i>and</i> 180B	W	4	_____
PLS 147/L	California Plant Communities & Fieldwork	PLS 2 or BIS 2C	S	3/1	_____
WFC 100	Field Methods in Wildlife, Fish, & Cons. Bio	EVE 101 or ESP 100 or equivalent, can be concurrent	S	4	_____
WFC 126*	Conservation in Working Landscapes	BIS 2B or consent of instructor, ESP 100 or EVE 101 recommended	F	4	_____
EPS 136	Ecogeomorphology	EPS 35	S	4	_____

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Select one cross-cutting ecology course					
ESM 141**	Role of Fire in Natural Ecosystems	BIS 2A or PLS 2; BIS 2B or BIS 2C	W	4	_____
ESM/PLS 144	Trees & Forests (not offered fall 23)	PLS 2 or BIS 2C	F	4	_____
ESP 124	Marine and Coastal Field Ecology	Acceptance into the Bodega Marine Lab summer program	Su	4	_____
ESP 151	Limnology	BIS 2A or equivalent; ESP 100 or EVE 101 recommended	S	4	_____
ETX 150	Evolution in Human-Altered	BIS 2B	S	4	_____
EVE 109	Environments Molecular Ecology	EVE 100	F	4	_____
EVE 115*	Marine Ecology	ESP 100 or EVE 101 or BIS 2B, or consent of instructor	W	4	_____
PLS 130*	Grassland Ecology	PLS 2 or BIS 2B or BIS 2C or consent of instructor; upper div standing	W	3	_____
WFC 125**	Tropical Ecology & Conservation Wildlife	ESP 100 or EVE 101	F	4	_____
WFC 151	Ecology	BIS 2B or equivalent	F	4	_____
WFC 168	Climate Change Ecology	BIS 2B; ESP 100 or EVE 101; or consent of instructor	W	4	_____
WFC 119	Freshwater Ecology	EVE 101 or ESP 100	W,S	3	_____
WFC 135	Wetland Ecology & Conservation	BIS 2B; EVE 101 or ESP 100 recommended	W,S	4	_____
ESP 150C	Biological Oceanography	BIS 2A	W,S	5	_____
EPS 136	Ecogeomorphology of Rivers & Streams	EPS 35	S	4	_____
EVE 125	Ecological Statistics	BIS 2B or BIO 1; MAT 17A or 21A or 19A	F, W, S	4	_____
Select one organismal biology course					
ENT 103	Insect Systematics	Introductory course in zoology or entomology	F	3	_____
EVE 112**	Biology of Invertebrates	BIS 2B-C; courses in systematics, ecology, & evolution recommended	W	4	_____
EVE 114	Experimental Invertebrate Biology	Acceptance into the Bodega Marine Lab summer program	Su	3	_____
PLB 116‡	Plant Morphology & Evolution	Introductory plant biology such as BIS 2C or PLS 2	W	5	_____
PLB/EVE 119*‡	Population Bio of Invasive Plants & Weeds	BIS 2A-C; elementary statistics course recommended	S	3	_____
WFC 110	Biology & Conservation of Wild Mammals	BIS 2A-C; EVE 101 or ESP 100 or equivalent (can be concurrent)	S	3	_____
WFC 111	Biology & Conservation of Wild Birds	BIS 2A-C; upper division ecology course recommended	F	3	_____
WFC 120	Biology & Conservation of Fishes	BIS 2A-C; upper division ecology course recommended	F	3	_____
WFC 134	Herpetology	BIS 2A-C; upper division ecology course recommended	W	3	_____
PLS 127	Systematics of Vascular Plants	BIS 2C or PLS 2	S	5	_____

‡ These are combined lecture/lab courses, an additional lab is not required if you complete one of these courses

Select one cross-cutting ecology or organismal biology lab course

ESP 151L	Limnology Laboratory	ESP 151 concurrently	S	3	_____
EVE 112L**	Biology of Invertebrates: Lab	BIS 2B and 2C; EVE 112 concurrently	W	2	_____
EVE/ENT 180B**	Exp Ecology & Evolution in the Field	MUST take <i>both</i> EVE/ENT 180A <i>and</i> 180B	S	4	_____
WFC 110L	Biology & Cons of Wild Mammals Lab	WFC 110 (may be concurrent); consent of instructor	S	3	_____
WFC 111L	Biology & Conservation of Wild Birds	WFC 111 (may be concurrent); consent of instructor	F	3	_____
WFC 120L	Lab Biology & Cons of Fishes Lab	WFC 120 (may be concurrent); consent of instructor	F	2	_____
WFC 134L	Herpetology Laboratory	WFC 134 (may be concurrent); consent of instructor	W	3	_____

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Select one population ecology course				
ESP 121 Population Ecology	BIS 2B; MAT 16B or 17B or 21B or 21BH	W	4	_____
WFC 122 Population Dynamics & Estimation	MAT 16A, 16B; STA 13; BIS 2A, 2B, 2C; upper div course in ecology	S	4	_____
Select one community ecology course				
ESP/EVE 104** Community Ecology (not offered spring 24)	ESP 100 or EVE 101	S	4	_____
EVE 115* Marine Ecology	ESP 100 or EVE 101 or BIS 2B, or consent of instructor	W	4	_____
EVE/PLB 117 Plant Ecology	BIS 2A-C; PLB 111 recommended	F	4	_____
WFC 155 Wildlife Habitat Ecology & Conservation	ESP 100 or EVE 101 or equivalent	F	4	_____
EVE 181 Ecology & Evolution of Animal-Plant Interactions	EVE 180A or ENT 180A	Not currently offered	4	_____
Select one ecosystems course				
ENH 160 Restoration Ecology	ESP 100 or 121 or 155 or EVE 101 or 117 or 119 or PLS 162 or 130	W	4	_____
ESP 151 Limnology	BIS 2A and 2B; BIS 2C and ESP 100 or EVE 101 recommended	S	4	_____
HYD 143** Echohydrology	HYD 141 or ESP 1 or ESM 108 or ESM 120 or GEL 1 or 50 or SSC 100	S	4	_____
PLS 162 Urban Ecology (not offered winter 24)	PLB 117 or ESP 100 or EVE 101 or EVE 120 or PLS 163	Su	3	_____
PLS 163 Ecosystem and Landscape Ecology	ESP 100 or SSC 112 or EVE 117 or ESM 144 or PLS 162 or ENH 160	W	4	_____
WFC 119 Freshwater Ecology	EVE 101 or ESP 100	W	3	_____
WFC 135 Wetland Ecology & Conservation	BIS 2B; EVE 101 or ESP 100 recommended	W	4	_____
EVE 147 Biogeography	BIS 2B	Not currently offered	4	_____

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