

## Environmental Sciences Upper Division Electives

Each student must complete at least one 3 or 4 unit upper division course in their area of emphasis. Please refer to the following list to determine the emphasis that each course falls under, or check the list online at <http://environmentalsciences.berkeley.edu/udelectives.html>

B=Biological Sciences Emphasis P=Physical Sciences Emphasis S=Social Sciences Emphasis

Bio.	Soc.	Phys.	Course	Course Name	Cross Listed
			<b>Architecture</b>		
		P	140	Intro. to Energy and Environmental Management/4	
		P	149	Seminar on the Physical Environment in Buildings/variable units	
			<b>Chemical Engineering</b>		
		P	140	Intro. to Chemical Process Analysis/4	
		P	141	Chem. Engineering Thermodynamics/3	
		P	142	Chem. Kinetics and Reaction Engineering/3	
		P	150A	Transport Processes/4	
		P	150B	Transport Separation Processes/4	
			<b>Chemistry</b>		
B		P	103	Inorganic Chemistry in Living Systems/3	
		P	104A	Advanced Inorganic Chemistry/3	
		P	104B	Advanced Inorganic Chemistry/3	
		P	105	Instrumental Methods in Analytical Chemistry/4	
B		P	112A	Organic Chemistry/5	
B		P	112B	Organic Chemistry/5	
B			115	Organic Chemistry--Advanced Laboratory Methods/4	
		P	120A	Physical Chemistry/3	
		P	120B	Physical Chemistry/3	
		P	125	Physical Chemistry Lab/3	
		P	130B	Biophysical Chemistry/3	
		P	C182	Atmospheric Chemistry and Physics Lab/3	EPS C182
			<b>Civil and Environmental Engineering</b>		
		P	100	Elementary Fluid Mechanics/4	
B		P	101	Fluid Mechanics of Rivers, Streams, and Wetlands/3	
		P	103	Introduction to Hydrology/3	
		P	C106	Air Pollution/3	EPS C180, ESPM C180
B	S	P	107	Climate Change Mitigation/3	
		P	108	Air Pollutant Emissions and Control/3	
		P	109	Indoor Air Quality/3	
B		P	110	Water Pollution Control and Treatment/3	
		P	111	Environmental Engineering/3	
B			114	Environmental Microbiology/3	
		P	115/L	Water Chemistry/3,1	
		P	C116	Environmental Aqueous Geochemistry/3	ESPM C128
		P	117/L	Environmental Organic Chemistry/2,1	
		P	171	Intro. to Geological Engineering/3	
		P	173	Groundwater and Seepage/3	
			<b>Demography</b>		
	S		C126	Social Consequences of Population Dynamics/4	Sociology C126
	S		C175	Economic Demography/3	Economics C175
			<b>Earth and Planetary Science (EPS)</b>		
B		P	C100	Communicating Ocean Science/4	IB C100
		P	100A	Minerals: Their Constitution and Origin/4	
		P	100B	Genesis and Interpretation of Rocks/4	
		P	101	Field Geology and Digital Mapping/4	
		P	105	Hydrogeology/3	
		P	117	Geomorphology/4	

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		P	119	Geologic Field Studies/2	
B	S	P	C120	Analysis of Environmental Data/4	ERG C130
B			C129	Biometeorology/3	ESPM C129
		P	131	Geochemistry/4	
		P	C141	Paleoclimatology/4	Geography C141
		P	C146	Geological Oceanography/4	Geography C145
	S	P	170AC	Crossroads of Earth Resources and Society/4	L&S 170AC
		P	C180	Air Pollution/3	ESPM C180
		P	C181	Atmospheric Physics and Dynamics/3	Geography C139
		P	C182	Atmospheric Chemistry and Physics Lab/3	Chemistry C182
B		P	185	Marine Geobiology/2	
			<b>Economics</b>		
	S		C102	Natural Resource Economics/4	EEP C102
	S		C125	Environmental Economics/4	EPP C101
	S		C171	Economic Development/4	EEP C151
	S		C175	Economic Demography/3	Demography C175
			<b>Energy and Resources Group (ERG)</b>		
	S	P	100	Energy and Society/4	
B	S	P	102	Quantitative Aspects of Global Environmental Problems/4	
		P	120	Renewable Resources for Electric Generation/3	
B	S	P	C130	Analysis of Environmental Data/4	EPS C120
	S	P	151	Politics of Energy and Environmental Policy/4	
	S		170	Environmental Classics/3	
	S		C180	Ecological Economics in Historical Context/3	EEP C180
			<b>Engineering</b>		
		P	115	Engineering Thermodynamics/4	
	S		124	Ethics and the Impact of Technology on Society/3	
			<b>Environmental Economics and Policy (EEP)</b>		
	S		100	Micro-economic Theory w/ Application to Natural Resources/4	
	S		C101	Environmental Economics/4	ECON C125
	S		C102	Natural Resource Economics/4	ECON. C102
B	S		C115	Modeling and Management of Biological Resources/4	ESPM C104
	S		131	Globalization and the Natural Environment/3	
	S		141	Agricultural and Environmental Policy/4	
	S		C151	Economic Development/4	Econ C171
	S		153	Population, Environment, and Development/3	
	S		161	Advanced Topics in Environmental & Resource Economics/4	
	S		162	Economics of Water Resources/3	
			<b>Environmental Sciences</b>		
B	S	P	125	Environments of the SF Bay Area/3	
			<b>Environmental Science Policy and Management (ESPM)</b>		
B			101A	Sierra Nevada Ecology/4	
B			102A	Terrestrial Resource Ecology/4	
B		P	102B/L	Natural Resource Sampling/2,2	
	S		102C	Resource Management/4	
	S		102D	Resource and Environmental Policy/4	
B			C103	Principles of Conservation Biology/4	IB C156
B	S		C104	Modeling and Management of Biological Resources/4	EEP C115
B			105A	Conservation Biology/4	
B			106	American Wildlife: Identification and Conservation/3	
B			C107	Biology and Geomorphology of Tropical Islands/13	IB C158
B			108A	Trees: Taxonomy, Growth, and Structures/3	
B			109	Range Plants/3	
B			110	Primate Ecology/4	

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B		111	Ecosystem Ecology/3	
B		112	Microbial Ecology/3	
B		113	Insect Ecology/2	
B		114	Wildlife Ecology/3	
B		115B	Biology of Aquatic Insects/3	
B		116A	Forest Ecology/4	
B		116B	Range Ecology, Improvements, and Management/3	
B		116C	Tropical Forest Ecology/3	
B	S	117	Urban Garden Ecosystems/4	
B		118	Agricultural Ecology/3	
B		119	Chemical Ecology/2	
B	P	120	Soil Characteristics/3	
B	P	121	Development and Classification of Soils/3	
	P	122	Field Study of Soil Development/1	
	P	126	Environmental Soil Chemistry/3	
	P	C128	Environmental Aqueous Geochemistry/3	Civil and Envir Engin C116
B		C129	Biometeorology/3	EPS C129
	P	C130	Water in Terrestrial Environment/3	Geography C136
B	P	131	Soil Microbiology Ecology/2	
B		134	Fire, Insects, and Diseases in Forest Ecosystems/3	
B		135	Biological Control of Pests/3	
B		C138	Introduction to Comparative Virology/4	MCB C114, Plant Bio C114
B		140	General Entomolgy/4	
B		144	Insect Physiology/3	
B		145	Anthropod-borne Zoonotic Diseases/2	
B		146/L	Medical and Veterinary Entomology/3,1	
B		147	Field Entomology/1	
B	P	C148	Pesticide Chemistry and Toxicology/3	NST C144
B		C149/L	Molecular Ecology/ 4,2	IB C149/L
	S	155	Sociology of Natural Resources/4	
	S	160AC	American Environmental and Cultural History/4	History 120AC
	S	161	Environmental Philosophy and Ethics/3	
B	S	162	Bioethics & Society /4	
	S	163AC	Environmental Justice: Race, Class, Equity, and the Env/4	Sociology 128AC
	S	165	International Rural Development Policy/4	
	S	166	Natural Res. Policy and Indigenous Peoples/4	
	S	167	Environmental Health and Development/3	
	S	168	Political Ecology/4	
	S	169	International Environmental Politics/4	
B	P	172	Photogrammetry and Remote Sensing/3	
	P	C180	Air Pollution/3	EPS C180
B	P	181A	Wildland Fire Science/3	
	S	181B	Understanding Urban-Wildland Interface Fires/3	
	S	183	Forest Planning and Management/4	
B		184	Agroforestry Systems/3	
B		185	Multiple Resource Silviculture/4	
B		186	Management and Conservation of Rangeland Ecosystems/4	
B		187	Wildlife Conservation/3	
B		188	Case Histories in Wildlife Management/2	
			<b>Geography</b>	
	S	130	Natural Resources and Population/4	
	P	C136	Water in Terrestrial Environment/3	ESPM C130
	P	C139	Atmospheric Physics and Dynamics/3	EPS C181
	P	140A	Physical Landscapes: Process and Form/4	
	P	140B	Physiography and Geomorphologic Extremes	

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		P	C141	Paleoclimatology/4	EPS C141
B			142	Climate Dynamics/4	
		P	143	Global Change and Biogeochemistry/4	
		P	144	Principles of Meteorology/4	
		P	C145	Geological Oceanography/4	EPS C146
B			148	Biogeography/4	
		P	180	Field Methods for Physical Geography/5	
		P	183	Cartographic Representation/4	
B	S	P	C188	Geographic Information Systems/4	Land Arch C188
			<b>History</b>		
	S		120AC	American Environmental and Cultural History/4	ESPM 160AC
			<b>Integrative Biology</b>		
B		P	C100	Communicating Ocean Science/4	EPS C100
B			C101/L	Diversity of Plants and Fungi/2,2	Plant Bio C102/L
B			102/L	Introduction to California Plant Life/2,2	
B			103/L	Invertebrate Zoology/3,2	
B			104/L	Natural History of the Vertebrates/3,2	
B			106	Biological Oceanography/3	
B		P	106A	Physical and Chemical Environment of the Ocean/4	
B			106L	Laboratory in Biological Oceanography/2	
B	S		117/L	Medical Ethnobotany/2,2	
B			C144	Animal Behavior/4	Psychology C115B
B			146	Behavioral Ecology/3	
B			C149L	Molecular Ecology/4,2	ESPM C149
B			151/L	Plant Physiological Ecology/3,2	
B			152	Environmental Toxicology/4	
B			153/L	Population and Community Ecology/3,3	
B			154/L	Plant Ecology/3,2	
B			C156	Principles of Conservation Biology/4	ESPM C103
B			157L	Ecosystems of California/4	
B			C158	Biology and Geomorphology of Tropical Islands/13	ESPM C107
B			160	Evolution/4	
B			162	Ecological Genetics/4	
B			C163	Survey of General Genetics/4	MCB C142
B			168/L	Systematics of Vascular Plants/2,2	
B			173/L	Mammalogy/2,3	
B			174/L	Ornithology/2,2	
B			175/L	Herpetology/2,2	
			<b>Landscape Architecture</b>		
B	S		110	Ecological Analysis/4	
		P	120	Topographic Form and Design Technology/3	
B	S	P	C188	Geographic Information Systems/4	Geog C188
			<b>Letters &amp; Science (L&amp;S)</b>		
		P	170AC	Crossroads of Earth Resources and Society/4	EPS 170AC
			<b>Mathematics</b>		
		P	121A	Mathematical Tools for Phys. Sciences/4	
		P	121B	Mathematical Tools for Phys. Sciences/4	
			<b>Mechanical Engineering</b>		
		P	106	Fluid Mechanics/3	
			<b>Molecular and Cell Biology (MCB)</b>		
B			102	Survey of the Principles of Biochemistry and Molecular Biology/4	
B			C112/L	General Microbiology/4,2	Plant Bio C112/L
B			C114	Introduction to Comparative Virology/4	ESPM C138, Plant Bio C114
B			C116	Microbial Diversity/3	Plant Bio C116
B			C142	Survey of General Genetics/4	IC C163

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Nutritional Sciences and Toxicology (NST)				
<b>B</b>		<b>110</b>	Toxicology/3	
<b>B</b>		<b>113</b>	Food Microbiology/2	
<b>B</b>		<b>C119</b>	Advanced Toxicology/3	Public Health C170B
Plant Biology				
<b>B</b>		<b>C102/L</b>	Diversity of Plants and Fungi/2,2	IB C101/L
<b>B</b>		<b>110/L</b>	Biology of Fungi/2,2	
<b>B</b>		<b>C112/L</b>	General Microbiology/4,2	MCB C112/L
<b>B</b>		<b>C114</b>	Introduction to Comparative Virology/4	ESPM C138, MCB C114
<b>B</b>		<b>C116</b>	Microbial Diversity/3	MCB C116
<b>B</b>		<b>120/L</b>	Biology of Algae/2,2	
<b>B</b>		<b>180</b>	Environmental Plant Biology/2	
Psychology				
<b>B</b>		<b>C115B</b>	Animal Behavior/4	IB C144
Public Health				
<b>B</b>	<b>S</b>	<b>140</b>	Introduction to Risk and Demographic Statistics/4	
<b>B</b>		<b>150A</b>	Introduction to Epidemiology & Human Disease/3	
<b>B</b>		<b>150B</b>	Introduction to Environmental Health Sciences/3	
<b>B</b>		<b>162A/L</b>	Public Health Microbiology/3,1	
<b>B</b>		<b>C170B</b>	Advanced Toxicology/3	NST C119
	<b>P</b>	<b>171</b>	Air Pollution/3	
Sociology				
	<b>S</b>	<b>C126</b>	Social Consequences of Population Dynamics/4	Demography C126
	<b>S</b>	<b>128AC</b>	Environmental Justice: Race, Class, Equity, and the Env/3	ESPM 163AC