

Climate Change and Air Quality

Why study climate change and air quality?

The climate change and air quality track aims to train students in the physical and biological processes associated with global climate change and air quality, and to provide them with the necessary policy background to be able to understand the implications of global warming and climate change. Courses cover foundations of climatology and atmospheric science, air quality, hydrology, interaction between vegetation and the atmosphere, biogeography and evolution, biomes, and environmental policy making. This track would prepare students for a broad range of environmental and policy positions in the public and private sectors, such as the California Air Resource Board, U.S. Environmental Protection Agency, various county Air Quality Management Districts, environmental consulting firms, and graduate school in a broad range of environmental topics.



Preparatory Subject Matter Requirements

Preparatory Subject Matter		Quarter(s) Offered	Units	Completed	Notes
Written and Oral Expression					
UWP 101, 102A-G, 104A-F	Upper Division Writing	I, II, III, IV	4	_____	<u>May test out of requirement</u> <u>UWP 102G, Env Writing, offered I, III</u>
CMN 1, 3, or DRA 10	Public Speaking	I, II, III, IV	4	_____	_____
Biological Sciences					
BIS 2A	Essentials of Life on Earth	I, II, III, IV	5	_____	_____
BIS 2B	Principles of Ecology and Evolution	I, II, III, IV	5	_____	_____
BIS 2C	Biodiversity and the Tree of Life	I, II, III, IV	5	_____	_____
Geology					
<i>Choose one of the following</i>					
GEL 1	The Earth	I, II, III	4	_____	_____
GEL 50 (recommended)	Physical Geology	I, II, III	3	_____	_____
Chemistry					
CHE 2A or 2AH	General Chemistry	I, II, IV	5	_____	_____
CHE 2B or 2BH	General Chemistry	II, III, IV	5	_____	_____
CHE 2C or 2CH (recommended, not required)	General Chemistry	I, III, IV	5	_____	_____
Physics					
<i>Complete either 1AB or 7ABC</i>					
PHY 1A	General Physics	I, II, IV	3	_____	_____
PHY 1B	General Physics	II, III	3	_____	_____
PHY 7A	General Physics	I, II, III, IV	4	_____	_____
PHY 7B	General Physics	I, II, III, IV	4	_____	_____
PHY 7C	General Physics	I, II, III, IV	4	_____	_____
Economics					
ECN 1A	Principles of Microeconomics	I, II, III, IV	4	_____	_____
Mathematics					
MAT 16A, 17A, or 21A	Calculus	I, II, III, IV	3-4	_____	<u>MAT 17AB recommended</u>
MAT 16B, 17B, or 21B	Calculus	I, II, III, IV	3-4	_____	_____
Environmental Science and Policy					
ESP 1	Environmental Analysis	I	4	_____	_____

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

*Course is offered in odd years only (2017, 2019, etc.)

**Course is offered in even years only (2016, 2018, etc.)

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

Depth Subject Matter	(29-32 Units)	Prerequisites	Qtr(s)	Units	Completed
Global Environment					
ESM 120	Global Environmental Interactions	One college-level chemistry and biology course	II	4	_____
Ecology					
<i>(Choose one of the following)</i>					
ESP 100	General Ecology	BIS 2A-C and MAT 16A-B, STA 13 recommended	I, III, IV	4	_____
EVE 101	Introduction to Ecology	BIS 2A-C and MAT 16A-B or the equivalent	I, II, III, IV	4	_____
Policy					
ESP 162	Environmental Policy	ECN 1A	II	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	I, II, III, IV	4	_____
STA 100	Applied Statistics for Biological Sciences	MAT 16B or the equivalent	I, II, III, IV	4	_____
Environmental Monitoring					
<i>(Choose one of the following)</i>					
ESM 108	Environmental Monitoring	Entry level course in the environmental sciences	III	3	_____
ESP 179	Environmental Impact Assessment	Upper division standing, one course in environmental science	II, IV	4	_____
GIS Technology					
ABT/LDA 150	Introduction to GIS	PLS 21 or equivalent with consent of instructor	I, III	4	_____
Internship					
ESM/ESP 192	Internship	Upper division standing, permission of instructor Variable unit – must take at least 3 units of internship May complete internship in a different area with prior approval (e.g.: PLS, SSC, ATM)	I, II, III, IV	3	_____
Capstone					
ESM 195	Integrating Env Science & Management	Senior standing; Environmental science major (e.g.: ESM, EPAP, ETX, WFC)	III	2	_____
Honors Thesis (Optional)					
ESM 194H	Senior Honors Thesis	Senior standing, Overall GPA of 3.50 or higher; Consent of the master adviser		2-6	_____

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NOTE: Courses taken for the depth subject matter or track cannot be used to fulfill more than one major requirement.

Required Courses	Prerequisites	Qtr(s)	Units	Completed	
Complete					
ATM 60	Introduction to Atmospheric Science	MAT 16A or 21A; PHY 7A, or 9A	I	4	_____
Select three climate science and meteorology courses					
ATM 116**	Climate Change	UWP 1 and consent of instructor	III	4	_____
ATM 133	Biometeorology	One biological course; MAT 16B; or consent of instructor	II	4	_____
ATM 160*	Intro to Atmospheric Chemistry	CHE 2B	II	4	_____
ESM 131	Air as a Resource	CHE 10 or CHE 2A	II	3	_____
GEL 108	Earth History: Paleoclimates	GEL 1 or ESP 116 and CHE 2A, or consent of the instructor	III	3	_____
ATM 115 [†]	Hydroclimatology	ATM 60		3	_____
Select two water and soil processes courses					
ESM 100	Principles of Hydrologic Science	CHE 2B; MAT 16B; PHY 7A or 9A	I	4	_____
ESM 121	Water Science & Management	PHY 10 or GEL 1	III	3	_____
ESP/GEL 116N*	Oceanography	GEL 1, 2, 16, or 50	II	3	_____
HYD 143**	Hydrological Processes in Ecosystems	HYD 141 or ESM 100	II	3	_____
SSC 100	Principles of Soil Science	CHE 2A-B, PHY 1A-B, BIS 2A; GEL 50, BIS 2C recommended	I	5	_____
Select one biological processes course					
ESM/PLS 144	Trees & Forests	PLS 2 or BIS 2C	I	4	_____
ESP 150C	Biological Oceanography	Acceptance into the Bodega Marine Lab summer program	IV	4	_____
ESP 151	Limnology	Upper division standing; BIS 2A	III	4	_____
ESP 155	Wetland Ecology	ESP 100 or PLB 117; ESP 110 or 151 recommended	I	4	_____
EVE 115*	Marine Ecology	ESP 100, EVE 101, or BIS 2B	II	4	_____
PLS 130**	Rangelands: Ecology, Cons, & Restoration	BIS 2C; intro ecology course & upper div standing recommended	II	3	_____
Select one biogeography and evolution course					
EVE 147*	Biogeography	BIS 2B	I	4	_____
EVE 149**	Evolution of Ecological Systems	ESP 100 or equivalent; EVE 100 or equivalent	I	4	_____
Select two environmental policy courses					
ESP 163**	Energy & Env Aspects of Transportation	ECN 1A	I	4	_____
ESP 165N	Climate Policy	ECN 1A, ESP 1, or consent of instructor	III	3	_____
ESP 167**	Energy Policy	ECN 1A	III	4	_____
ESP 171	Urban & Regional Planning	ESP 1	III	4	_____
ESP 172	Public Lands Management	ECN 1A	I	4	_____
ESP 179	Environmental Impact Assessment	Upper division standing; one course in environmental science	II, IV	4	_____
SOC 160	Sociology of the Environment	Upper division standing in Sociology strongly recommended	II	4	_____

[†]Future availability unknown

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