

# ENVIRONMENTAL SCIENCE & MANAGEMENT, BACHELOR OF SCIENCE

## College of Agricultural & Environmental Sciences

The Environmental Science & Management (ESM) major is jointly coordinated by the Department of Environmental Science & Policy and the Department of Land, Air, & Water Resources.

The major is designed for students who are interested in solving environmental problems from an interdisciplinary perspective linking the natural and social sciences. Students who choose this major will study the interaction of physical, biological, and social components of environmental problems. Students completing the program will understand the scientific basis for environmental decision-making and the legal, economic, and political issues involved in management of the environment.

## Environmental Science & Policy

Susan Harrison, Chairperson  
2132 Wickson Hall; 530-752-3026; Environmental Science & Policy (<http://desp.ucdavis.edu/>); Faculty (<http://desp.ucdavis.edu/faculty/>)

## Land, Air, & Water Resources

William Horwath, Chairperson  
1110 Plant & Environmental Sciences Building; 530-752-1130; Land, Air & Water Resources (<http://lawr.ucdavis.edu/>); Faculty (<http://www.lawr.ucdavis.edu/people/faculty/>)

## The Program

Courses in biology, chemistry, physics, economics, geology, and calculus form the lower division preparatory foundation of the curriculum. These are then tied together with Environmental Science & Policy ESP 001, which provides an inter-disciplinary analysis of several environmental problems. The upper division core consists of foundation courses in physical, biological, and social sciences, as well as applied courses in environmental monitoring, GIS, impact reporting, and statistical analysis. In their junior year, students must choose a specialized track from the following six options:

- Climate Change & Air Quality
- Ecology, Biodiversity, & Conservation
- Environmental Data Science
- Natural Resource Management
- Soils & Biogeochemistry
- Watershed Science

A capstone course is required for all seniors and serves to integrate the science, policy/management and biology aspects of the ESM major. All students gain practical experience through field courses and a required internship. Selected students may also pursue an honors thesis in their senior year.

The ESM major is jointly administered by the Departments of Environmental Science & Policy (ESP) and Land, Air & Water Resources (LAWR). Any student in good standing is eligible to transfer to the major;

to do so, please see the student affairs officers in 2134 Wickson Hall or in 1150 Plant & Environmental Sciences Building.

## Careers

Graduates from this program are prepared to pursue careers as practicing environmental scientists, resource analysts and planners working for public agencies and private firms specializing in environmental quality, natural resources or ecological research. The major is also excellent preparation for graduate or professional training in physical and/or biological environmental science graduate programs, as well as in environmental law, administration and environmental policy.

## Major Advisors

Marissa Baskett (Environmental Science & Policy); Terrence Nathan (Land, Air & Water Resources)

**Advising centers** for the major, including peer advising, are located in both the Environmental Science & Policy and Land, Air & Water Resources departments. Students whose last names begin with the letters:

- A-L, see Destiny Akins in 2134 Wickson Hall.
- M-Z, see Lacle Brooks in 1150 Plant & Environmental Sciences.

The major requirements below are in addition to meeting University Degree Requirements (<https://catalog.ucdavis.edu/undergraduate-education/university-degree-requirements/>) & College Degree Requirements (<https://catalog.ucdavis.edu/undergraduate-education/college-degree-requirements/>); unless otherwise noted. Respective of the Specialized Track, the minimum number of units required for the Environmental Science & Management Bachelor of Science is 111.

Code	Title	Units
<b>English Composition &amp; Communication Requirement</b>		
Choose one:		0-4
UWP 101	Advanced Composition	
or UWP 101V	Advanced Composition	
or UWP 101Y	Advanced Composition	
*OR* any course from the UWP 102 or UWP 104 series. ( <a href="https://catalog.ucdavis.edu/courses-subject-code/uwp/">https://catalog.ucdavis.edu/courses-subject-code/uwp/</a> )		
UWP 102B, UWP 102G, or UWP 104E recommended		
Passing the Upper Division English Composition Exam.		
Communication; choose one:		4
CMN 001	Introduction to Public Speaking	
or CMN 001V	Introduction to Public Speaking	
CMN 003	Interpersonal Communication Competence	
or CMN 003V	Interpersonal Communication Competence	
or CMN 003Y	Interpersonal Communication Competence	
DRA 010	Introduction to Performance & Digital Media	
English Composition & Communication Requirement Subtotal		4-8
<b>Preparatory Subject Matter</b>		
<i>Biological Science</i>		
BIS 002A	Introduction to Biology: Essentials of Life on Earth	5
BIS 002B	Introduction to Biology: Principles of Ecology & Evolution	5
BIS 002C	Introduction to Biology: Biodiversity & the Tree of Life	5

<i>Geology</i>		
Choose one:		3-4
ESP 001	Environmental Analysis	
GEL 001	The Earth (Discontinued for fall 2026) **	
GEL 050	Physical Geology (Recommended)	
<i>Chemistry</i>		
Choose a series:		10
CHE 002A & CHE 002B	General Chemistry and General Chemistry	
CHE 002AH & CHE 002BH	Honors General Chemistry and Honors General Chemistry	
Choose one; not required: <sup>1</sup>		
CHE 002C or CHE 002CH	General Chemistry or Honors General Chemistry	
<i>Physics</i>		
Choose a series:		6-12
PHY 001A & PHY 001B	Principles of Physics and Principles of Physics	
PHY 007A & PHY 007B & PHY 007C	General Physics and General Physics and General Physics	
<i>Economics</i>		
Choose one:		4
ECN 001A or ECN 001AV or ECN 001AY	Principles of Microeconomics or Principles of Microeconomics or Principles of Microeconomics	
<i>Mathematics</i>		
Choose one series:		6-12
MAT 016A & MAT 016B	and (Discontinued for spring 2025) ** DISCONTINUED FOR SPRING 2025 **	
MAT 017A & MAT 017B	Calculus for Biology & Medicine and Calculus for Biology & Medicine (Recommended)	
MAT 019A & MAT 019B & MAT 019C	Calculus for Data-Driven Applications and Calculus for Data-Driven Applications and Calculus for Data-Driven Applications	
MAT 021A & MAT 021B	Calculus and Calculus	
<i>Environmental Science &amp; Policy</i>		
ESP 001	Environmental Analysis	4
Satisfaction of the General Education requirement.		
Preparatory Subject Matter Subtotal		48-61
<b>Core Subject Matter</b>		
<i>Environmental Science &amp; Management</i>		
ESM 120	Global Environmental Interactions	4
<i>Ecology</i>		
Choose one:		4
ESP 100 or EVE 101	General Ecology or Introduction to Ecology	
<i>Environmental Science &amp; Policy</i>		
ESP 162	Environmental Policy	4
<i>Statistics</i>		
STA 100	Applied Statistics for Biological Sciences (Recommended)	4

or STA 013 or STA 013Y	Elementary Statistics or Elementary Statistics	
Students completing the Environmental Data Science specialized track may also choose STA 032 and cannot choose STA 013 or STA 013Y.		
<i>Environmental Monitoring</i>		
Choose one:		3-4
ATM 124	Meteorological Instruments & Observations	
ESM 108	Environmental Monitoring	
ESP 151L	Limnology Laboratory	
ESP 179	Environmental Impact Assessment	
Students need a unique course for each requirement and cannot double-count a class towards two requirements. For example, ESP 179 can be used for either the environmental monitoring requirement or towards the environmental policy course for the student's specialized track, but not both.		
<i>Environmental Data Science</i>		
ABT 150/ LDA 150 DISCONTINUED	Introduction to Geographic Information Systems	4
or ESP 106	Environmental Data Science	
<i>Internship</i>		
Choose one or more below in any combination for a total of 3 units:		
ESM 092	Internship	
ESP 092	Internship	
ESM 192	Internship	
ESP 192	Internship	
<i>Capstone Class</i>		
ESM 195	Integrating Environmental Science & Management	2
<i>Honors Thesis; Optional</i>		
ESM 194H	Senior Honor Thesis	0-3
Core Subject Matter Subtotal		28-32
<b>Specialized Tracks</b>		
Choose a Specialized Track:		31-49
Climate Change & Air Quality Specialized Track (p. 3)		
Ecology, Biodiversity & Conservation Specialized Track (p. 3)		
Environmental Data Science Specialized Track (p. 4)		
Natural Resource Management Specialized Track (p. 5)		
Soils & Biogeochemistry Specialized Track (p. 6)		
Watershed Science Specialized Track (p. 6)		
Specialized Tracks Subtotal		31-49
<b>Total Units</b>		<b>111-150</b>

<sup>1</sup> CHE 002C or CHE 002CH recommended, but not required.

\*\* Course(s) discontinued; see your advisor for course options.

## Climate Change & Air Quality Specialized Track

Code	Title	Units
<i>Atmospheric Science</i>		
ATM 060	Introduction to Atmospheric Science	4
ATM 116	Modern Climate Change	3
ESM 131	Air as a Resource	3
<i>Additional Climate Science &amp; Meteorology</i>		
Choose two:		6-8
ATM 110	Weather Observation & Analysis	
ATM 115	Hydroclimatology	
ATM 133	Biometeorology	
ATM 160	Introduction to Atmospheric Chemistry	
GEL 108	Earth History: Paleoclimates	
<i>Environmental Science</i>		
Choose three environmental science courses, must select at least one from section A and one from section B		9-14
<b>A—Physical</b>		
ESM 100	Introduction to Water Science	
ESM 121	Water Science & Management	
ESP 116N/ GEL 116N DISCONTINUED FOR FALL 2026	Oceanography (Discontinued for fall 2026) **	
or EPS 116		
ESP 152	Coastal Oceanography	
HYD 141	Physical Hydrology	
HYD 143	Ecohydrology	
SSC 100	Principles of Soil Science	
<b>B—Biomes</b>		
ENH 160	Restoration Ecology	
ESM 141	Role of Fire in Natural Ecosystems	
ESM/PLS 144	Trees & Forests	
ESP 124	Marine & Coastal Field Ecology	
ESP 150C/ GEL 150C DISCONTINUED FOR FALL 2026	Biological Oceanography (ESP 150C) Discontinued for fall 2026 **	
or EPS 150C		
ESP 151	Limnology	
ESP 155	Wetland Ecology (Discontinued for winter 2026) **	
EVE 115	Marine Ecology	
EVE/PLB 117	Plant Ecology	
EVE 147	Biogeography	
EVE 149	Evolution of Ecological Systems (Discontinued for winter 2026) **	
GEL 136	Ecogeomorphology of Rivers & Streams (Discontinued for fall 2026) **	
or EPS 136		
PLS 101	Agriculture & the Environment	
PLS 130	Grassland Ecology	
PLS 162	Urban Ecology	
WFC 168	Climate Change Ecology	
<i>Environmental Policy</i>		
Choose two:		7-8

ESP/ECI 163	Energy & Environmental Aspects of Transportation
ESP 165	Climate Policy
ESP 167	Energy Policy
ESP 171	Urban & Regional Planning
ESP 172	Public Lands Management
ESP 174	Environmental Justice Policy & Practice
ESP 179	Environmental Impact Assessment
SOC 160	Sociology of the Environment
<b>Total Units</b>	<b>32-40</b>

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Course(s) discontinued; see your advisor for course options.

## Ecology, Biodiversity & Conservation Specialized Track

Code	Title	Units
Courses appearing in more than one section can only be used to fulfill one section.		
<i>Physical Processes</i>		
Choose one:		3-5
ATM 060	Introduction to Atmospheric Science	
ATM 116	Modern Climate Change	
ATM 133	Biometeorology	
ESM 121	Water Science & Management	
ESM 131	Air as a Resource	
ESP 152	Coastal Oceanography	
GEL 134	Environmental Geology & Land Use Planning (Discontinued for fall 2026) **	
or EPS 134		
HYD 143	Ecohydrology	
SSC 100	Principles of Soil Science	
<i>Environmental Policy</i>		
Choose one:		3-5
ESP 161	Environmental Law	
ESP 166	Ocean & Coastal Policy	
ESP 168A	Methods of Environmental Policy Analysis	
ESP 169	Water Policy & Politics	
ESP 170	Conservation Biology Policy	
ESP 171	Urban & Regional Planning	
ESP 172	Public Lands Management	
ESP 173	Land Use & Growth Controls	
ESP 174	Environmental Justice Policy & Practice	
ESP 179	Environmental Impact Assessment	
SOC 160	Sociology of the Environment	
<i>Evolution</i>		
EVE 100	Introduction to Evolution	4
<i>Conservation Biology</i>		
Choose one:		4
WFC 154	Conservation Biology	
or ESP 127	Plant Conservation Biology	
<i>Field Methods</i>		
Choose one:		3-5

ESP 123	Introduction to Field & Laboratory Methods in Ecology	
ESP 124	Marine & Coastal Field Ecology	
ESP 151L	Limnology Laboratory	
EVE/ENT 180A	Experimental Ecology & Evolution in the Field	
WFC 100	Field Methods in Wildlife, Fish, & Conservation Biology	
WFC 126	Conservation in Working Landscapes	
ENH 160 & 160L	Restoration Ecology and Restoration Ecology Laboratory	
PLS 147 & 147L	California Plant Communities and California Plant Communities Field Study	
<i>Population Ecology</i>		
Choose one:		
ESP 121	Population Ecology	4
or WFC 122	Population Dynamics & Estimation	
<i>Community Ecology</i>		
Choose one:		
EVE 104	Community Ecology	3-4
EVE 115	Marine Ecology	
EVE 181	Ecology & Evolution of Animal-Plant Interactions	
PLB/EVE 117	Plant Ecology	
WFC 155	Wildlife Space Use & Habitat Conservation	
<i>Ecosystems</i>		
Choose one:		
ENH 160	Restoration Ecology	3-4
ESP 151	Limnology	
ESP 155	Wetland Ecology	
EVE 147	Biogeography	
HYD 143	Ecohydrology	
PLS 162	Urban Ecology	
PLS 163	Ecosystem & Landscape Ecology	
<i>Choose one cross-cutting ecology course</i>		
ESM 141	Role of Fire in Natural Ecosystems	3-5
ESM/PLS 144	Trees & Forests	
ESP 124	Marine & Coastal Field Ecology	
ESP 150C/ GEL 150C DISCONTINUED or EPS 150C	Biological Oceanography (ESP 150C Discontinued for fall 2026) **	
ESP 151	Limnology	
ESP 155	Wetland Ecology	
ETX 150	Evolution in Human-Altered Environments	
EVE 109	Molecular Ecology	
EVE 115	Marine Ecology	
EVE 138	Ecology of Tropical Latitudes (Discontinued)	
PLS 130	Grassland Ecology	
WFC 125	Tropical Ecology & Conservation	
WFC 151	Wildlife Ecology	
WFC 168	Climate Change Ecology	

Choose one organismal biology course

3-5

ENT 103	Insects Systematics	
ENT 116	(Discontinued for spring 2023) **	
EVE 112	Biology of Invertebrates	
EVE 114	Experimental Invertebrate Biology	
PLB 102/ PLS 102 DISCONTINUED	(Discontinued for winter 2024; fulfills both the organismal lecture and lab requirements, simultaneously) **	
PLB/PLS 116	Plant Morphology & Evolution (fulfills both the organismal lecture and lab requirements, simultaneously)	
PLB/EVE 119	Population Biology of Invasive Plants & Weeds (fulfills both the organismal lecture and lab requirements, simultaneously)	
WFC 110	Biology & Conservation of Wild Mammals	
WFC 111	Biology & Conservation of Wild Birds	
WFC 120	Biology & Conservation of Fishes	
WFC 134	Herpetology	
<i>Complete one lab associated with either the cross-cutting ecology or organismal biology course:</i>		
ENT 116L	(Discontinued for spring 2023) **	0-4
ESP 151L	Limnology Laboratory	
ESP 155L	Wetland Ecology Laboratory (Discontinued for winter 2026) **	
EVE 112L	Biology of Invertebrates Laboratory	
EVE/ENT 180B	Experimental Ecology & Evolution in the Field	
WFC 110L	Laboratory in Biology & Conservation of Wild Mammals	
WFC 111L	Laboratory in Biology & Conservation of Wild Birds	
WFC 120L	Laboratory in Biology & Conservation of Fishes	
WFC 134L	Herpetology Laboratory	

**Total Units**

**33-49**

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Course(s) discontinued; see your advisor for course options.

## Environmental Data Science Specialized Track

Code	Title	Units
<i>Environmental Data Science</i>		4
ESP 106	Environmental Data Science	
<i>Programming</i>		4
ECS 032A or ECS 032AV	Introduction to Programming	
<i>Data Analysis</i>		4
Choose one:		
ABT 181N	Concepts & Methods in Geographic Information Systems	
ABT/HYD 182	Environmental Analysis Using GIS	
<i>Remote Sensing</i>		4-5
Choose one:		

ESM 185	Aerial Photo Interpretation & Remote Sensing	
ESM 186	Environmental Remote Sensing	
<i>Environmental Policy</i>		
Choose one:		3-4
ESP/ECI 163	Energy & Environmental Aspects of Transportation	
ESP 165	Climate Policy	
ESP 166	Ocean & Coastal Policy	
ESP 169	Water Policy & Politics	
ESP 171	Urban & Regional Planning	
ESP 172	Public Lands Management	
ESP 174	Environmental Justice Policy & Practice	
ESP 179	Environmental Impact Assessment	
SOC 160	Sociology of the Environment	
<i>Quantitative Environmental Science</i>		
Choose one:		3-4
ATM 120	Atmospheric Thermodynamics & Cloud Physics	
ESP 121	Population Ecology	
HYD 143	Ecohydrology	
PLS 123	Introduction to Plant & Crop Systems Modeling	
WFC 122	Population Dynamics & Estimation	
<i>Statistical Analysis</i>		
Choose two:		8
STA 104	Applied Statistical Methods: Nonparametric Statistics	
STA 106	Applied Statistical Methods: Analysis of Variance	
STA 108	Applied Statistical Methods: Regression Analysis	
STA 130A	Mathematical Statistics: Brief Course	
STA 130B	Mathematical Statistics: Brief Course	
STA 135	Multivariate Data Analysis	
STA 137	Applied Time Series Analysis	
STA 141A	Fundamentals of Statistical Data Science	
STA 141B	Data & Web Technologies for Data Analysis	
STA 142A	Statistical Learning I	
<i>Physical Processes</i>		
Choose one:		3-5
ATM 110	Weather Observation & Analysis	
ATM 116	Modern Climate Change	
ATM 133	Biometeorology	
ESM 100	Introduction to Water Science	
ESM 121	Water Science & Management	
ESM 131	Air as a Resource	
SSC 100	Principles of Soil Science	
<i>Biological Processes</i>		
Choose one:		3-5
ESP 124	Marine & Coastal Field Ecology	
ESP 150C/ GEL 150C DISCONTINUED FOR FALL 2026**	Biological Oceanography (ESP 150C)	

or EPS 150C	
ESP 151	Limnology
ESP 152	Coastal Oceanography
ESP 155	Wetland Ecology
EVE/PLB 117	Plant Ecology
EVE 147	Biogeography
GEL 136	Ecogeomorphology of Rivers & Streams (Discontinued for fall 2026)**
or EPS 136	
PLS 101	Agriculture & the Environment
PLS 130	Grassland Ecology
PLS 163	Ecosystem & Landscape Ecology
WFC 125	Tropical Ecology & Conservation
WFC 168	Climate Change Ecology
<b>Total Units</b>	<b>36-43</b>

## Natural Resource Management Specialized Track

Code	Title	Units
Courses appearing in more than one section can only be used to fulfill one section.		
<i>Environmental Policy</i>		
Choose three:		9-13
ESP 160	The Policy Process	
ESP 165	Climate Policy	
ESP 166	Ocean & Coastal Policy	
ESP 167	Energy Policy	
ESP 168A	Methods of Environmental Policy Analysis	
ESP 169	Water Policy & Politics	
ESP 170	Conservation Biology Policy	
ESP 171	Urban & Regional Planning	
ESP 172	Public Lands Management	
ESP 173	Land Use & Growth Controls	
ESP 174	Environmental Justice Policy & Practice	
ESP 179	Environmental Impact Assessment	
HYD 150	Water Law	
SOC 160	Sociology of the Environment	
<i>Environmental Law</i>		
Choose one:		3-4
ESP 161 or HYD 150	Environmental Law Water Law	
<i>Statistics</i>		
Choose one:		4
ARE 106	Econometric Theory & Applications	
ECN 102	Analysis of Economic Data	
STA 101	Advanced Applied Statistics for the Biological Sciences	
STA 103	Applied Statistics for Business & Economics	
STA 106	Applied Statistical Methods: Analysis of Variance	
STA 108	Applied Statistical Methods: Regression Analysis	

STA 130A	Mathematical Statistics: Brief Course	
STA 131A	Introduction to Probability Theory	
Or equivalent upper division statistics.		
<i>Biological Processes</i>		
Choose two:		6-8
ENT 104	Behavioral Ecology of Insects	
ESM 141	Role of Fire in Natural Ecosystems	
ESM/PLS 144	Trees & Forests	
ESP 151	Limnology	
ESP 155	Wetland Ecology	
EVE 115	Marine Ecology	
PLB/EVE 117	Plant Ecology	
PLS 130	Grassland Ecology	
WFC 110	Biology & Conservation of Wild Mammals	
WFC 111	Biology & Conservation of Wild Birds	
WFC 120	Biology & Conservation of Fishes	
WFC 134	Herpetology	
<i>Physical Processes</i>		
Choose two:		6-9
ATM 116	Modern Climate Change	
ATM 133	Biometeorology	
ESM 121	Water Science & Management	
ESM 131	Air as a Resource	
ESP 116N/ GEL 116N DISCONT <sup>**</sup>	Oceanography (Discontinued for fall 2026)	
or EPS 116		
ESP 152	Coastal Oceanography	
HYD 143	Ecohydrology	
SSC 100	Principles of Soil Science	
<i>Remote Sensing</i>		
Choose one:		
ESM 185	Aerial Photo Interpretation & Remote Sensing	4-5
or ESM 186	Environmental Remote Sensing	
<b>Total Units</b>		<b>32-43</b>

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Course(s) discontinued; see your advisor for course options.

## Soils & Biogeochemistry Specialized Track

Code	Title	Units
<i>Soil Science</i>		
Courses appearing in more than one section can only be used to fulfill one section.		
SSC 100	Principles of Soil Science	5
<i>Additional Soil Science</i>		
Choose four:		16-21
ESM 100	Introduction to Water Science	
HYD 134	Aqueous Geochemistry	
SSC 102	Environmental Soil Chemistry	
SSC 105	Field Studies of Soils in California Ecosystems	

SSC 107	Soil Physics	
SSC 109	Sustainable Nutrient Management	
SSC 111	Soil Microbiology	
SSC 112	Soil Ecology	
SSC 118	Soils in Land Use & the Environment	
SSC 120	Soil Genesis, Morphology, & Classification	
<i>Environmental Science &amp; Policy</i>		
Choose two:		6-8
ESM 121	Water Science & Management	
ESP 165	Climate Policy	
ESP 166	Ocean & Coastal Policy	
ESP 171	Urban & Regional Planning	
ESP 172	Public Lands Management	
ESP 174	Environmental Justice Policy & Practice	
ESP 179	Environmental Impact Assessment	
SOC 160	Sociology of the Environment	
<i>Land Use Analysis</i>		
Choose one:		3-4
ESM 185	Aerial Photo Interpretation & Remote Sensing	
GEL 134	Environmental Geology & Land Use Planning	
HYD/EBS 147	Runoff, Erosion & Water Quality Management	
SSC 118	Soils in Land Use & the Environment	
<i>Physical &amp; Biological Processes</i>		
Choose two:		6-8
ATM 160	Introduction to Atmospheric Chemistry	
ESM/PLS 144	Trees & Forests	
ESP 116N/ GEL 116N DISCONT <sup>**</sup>	Oceanography (Discontinued for fall 2026)	
or EPS 116		
ESP/GEL 150A	Physical & Chemical Oceanography	
ESP 150C/ GEL 150C DISCONT <sup>**</sup>	Biological Oceanography (ESP 150C Discontinued for fall 2026)	
or EPS 150C		
ESP 151	Limnology	
ESP 155	Wetland Ecology (Discontinued for winter 2026)	
EVE/PLB 117	Plant Ecology	
GEL 132	Introductory Inorganic Geochemistry (Discontinued for fall 2026)	
or EPS 132		
PLS 130	Grassland Ecology	
<b>Total Units</b>		<b>36-46</b>

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Course(s) discontinued; see your advisor for course options.

## Watershed Science Specialized Track

Code	Title	Units
Courses appearing in more than one section can only be used to fulfill one section.		
<i>Complete both introductory hydrologic and soil science courses.</i>		

SSC 100	Principles of Soil Science	
ESM 100	Introduction to Water Science	
<i>Water Management</i>		
Choose one:		3-4
ESM 121	Water Science & Management	
ESM 125	River Conservation	
HYD 150	Water Law	
<i>Hydrologic Science</i>		
Choose two:		7-8
ATM 133	Biometeorology	
HYD/ESM/ABT 110	Irrigation Systems & Water Management	
HYD 118/ EBS 148/ESM 118	Evapotranspiration Principles, Measurement & Modeling	
ESP 116N/ GEL 116N DISCONTINUED FOR FALL 2026	Oceanography (Discontinued for fall 2026) **	
	or EPS 116	
HYD 124	Plant-Water-Soil Relationships	
HYD 143	Ecohydrology	
HYD/EBS 144	Groundwater Hydrology	
HYD 145	Water Science & Design	
<i>Physical Environments</i>		
Choose one:		3-5
ESP 109	(Discontinued for fall 2026)	
	or GEL 109 DISC	
ESP 151L	Limnology Laboratory	
ESP 152	Coastal Oceanography	
GEL 035	Rivers (Discontinued for fall 2026) **	
	or EPS 035	
GEL 136	Ecogeomorphology of Rivers & Streams (Discontinued for fall 2026) **	
	or EPS 136	
GEL 140	Introduction to Process Geomorphology	
<i>Environmental Data Science</i>		
Choose one:		4
ABT 181N	Concepts & Methods in Geographic Information Systems	
ABT/HYD 182	Environmental Analysis Using GIS	
ESM 185	Aerial Photo Interpretation & Remote Sensing	
ESP 106	Environmental Data Science	
<i>Environmental Policy</i>		
Choose two:		6-11
ESP 166	Ocean & Coastal Policy	
ESP 168A	Methods of Environmental Policy Analysis	
ESP 169	Water Policy & Politics	
ESP 172	Public Lands Management	
ESP 173	Land Use & Growth Controls	
ESP 174	Environmental Justice Policy & Practice	
ESP 179	Environmental Impact Assessment	
<i>Soil Science</i>		
Choose one:		4-5

SSC 105	Field Studies of Soils in California Ecosystems	
SSC 118	Soils in Land Use & the Environment	
SSC 120	Soil Genesis, Morphology, & Classification	
<i>Aquatic Organisms &amp; Habitats</i>		
Choose one:		3-4
ENT 116	(Discontinued for spring 2023) **	
ESP 151	Limnology	
ESP 155	Wetland Ecology	
EVE 115	Marine Ecology	
WFC 120	Biology & Conservation of Fishes	
WFC 134	Herpetology	
<b>Total Units</b>		<b>30-41</b>

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Course(s) discontinued; see your advisor for course options.