

Environmental and Ocean Sciences Major: Marine Ecology Pathway (BS)
Advisement Checklist

Preparation for the major (35 units):

- _____ EOOSC 123 (4) – Organisms and Ecosystems (Core: Scientific Inquiry [ESTI] & Quantitative Reasoning [CQUR])
- _____ EOOSC 110 or EOOSC 105 (4) – The Dynamic Earth or Natural Disasters (Core: ESTI & CQUR)
- _____ EOOSC 220 (4) – Introduction to Atmospheric and Ocean Sciences
- _____ EOOSC 222 (3) – Environmental Data Analysis (Core: CQUR)
- _____ CHEM 151/151L (4) – General Chemistry with Lab (Core: ESTI & CQUR (lab only))
- _____ CHEM 152/152L (4) – General Chemistry with Lab
- _____ MATH 150 (4) – Calculus I (Core: Math Reasoning and Problem Solving [CMRP])
- _____ PHYS 136/136L (4) – General Physics I with Lab (Core: ESTI & CQUR (lab only))
- _____ CHEM 301/301L (4) – Organic Chemistry I with Lab

Upper-Division Requirements (25-27 units)

- _____ EOOSC 300 or EOOSC 303 (3) – Environmental Issues or Environmental Issues Abroad
- _____ EOOSC 301 (4) – Research Applications in Environ. and Ocean Sciences (Core: Adv. Writing [CADW])

Capstone Experience

- _____ EOOSC 496 or 498 or 499 (2) – Research, Internship, or Independent Study
- _____ EOOSC 492 (1) – Advanced Research Synthesis
- _____ EOOSC 495 (1) – Senior Seminar (Core: Oral Communication [CORL])

Electives: Choose 4 courses: 3 courses from the biological group (at least one must be an ecology course) and one from the geo-physical course. At least 2 of the electives must include labs. One of the biological electives can be interdisciplinary between biological and geo/physical or non-science topics.

- _____ EOOSC Biological Elective, ecology course (See list on back): _____
- _____ EOOSC Biological Elective, ecology or non-ecology (See list on back): _____
- _____ EOOSC Biological Elective, ecology or non-ecology (See list on back): _____
- _____ Geo/physical Elective (See list on back): _____

Biology Minor (18 units)

A biology minor is required for the Marine Ecology Pathway

- _____ BIOL 240/240L (4) – Bioenergetics and Systems with Lab (Core: ESTI & CQUR (lab only))
- _____ BIOL 242/242L (4) – Genomes and Evolution with Lab (Core: ESTI & CQUR (lab only))
- _____ BIOL 300 or BIOL 305 (3) – Genetics or Ecology
- _____ Upper-division elective in Biology with Lab (4) _____
- _____ Upper-division elective in Biology without Lab (3) _____

Note that courses in blue are common to all three pathways.

Elective Course Options for Marine Ecology Pathway

EOSC Biological courses:

- (4) EOSC 350 – Invertebrate Zoology ^
 - (3-4) EOSC 400 – Topics in Ecology*
 - (3-4) EOSC 401 – Topics in Environmental Biology
 - (3-4) EOSC 430/EOSC 431 – Human Impacts on the Coastal Environment with or without Lab*
 - (4) EOSC 433 – Plankton Ecology*
 - (3-4) EOSC 434/EOSC 435 – Wetlands Ecology with or without Lab*
 - (3-4) EOSC 436/EOSC 437 – Marine Community Ecology with or without Lab*
 - (3-4) EOSC 438/EOSC 439 – Animal Behavioral Ecology with or without Lab* ^
 - (4) EOSC 440 – Mathematical Modeling in Ecology ^
 - (4) EOSC 451 – Biological Oceanography* ^
 - (4) EOSC 462 – Biology of Fishes ^
 - (3) EOSC 465 – Marine Mammals ^
- * ecology courses
^ cross-listed with Biology Department (so can be used for either EOSC major or Biology minor)

Geo/physical courses:

- (3-4) EOSC 402 – Topics in Marine Geo/Physical/Chemical Science
- (4) EOSC 420 – Introduction to Remote Sensing
- (4) EOSC 450 – Geological Oceanography
- (4) EOSC 452 – Environmental and Ocean Geochemistry
- (4) EOSC 473 – Climatology
- (3-4) EOSC 474/EOSC 475 – History of the Earth and Climate with or without Lab

Interdisciplinary Courses with Biological Component:

- (3-4) EOSC 405 – Topics in Interdisciplinary Environmental Science and Studies
- (3-4) EOSC 406 – Topics in Interdisciplinary Environmental Science

Or approved study abroad courses (talk to your advisor early if you are planning on studying abroad!)

Note: Some upper-division electives in EOSC may count for Advanced Integration depending on the semester. Check the list of electives for the current semester and/or talk to your advisor

Environmental and Ocean Sciences Major: Environmental Science Pathway (BA)
Advisement Checklist

Preparation for the major (31 units):

- _____ EOSC 123 (4) – Organisms and Ecosystems (Core: Scientific Inquiry [ESTI] & Quantitative Reasoning [CQUR])
- _____ EOSC 110 or EOSC 105 (4) – The Dynamic Earth or Natural Disasters (Core: ESTI & CQUR)
- _____ EOSC 220 (4) – Introduction to Atmospheric and Ocean Sciences
- _____ EOSC 222 (3) – Environmental Data Analysis (Core: CQUR)
- _____ CHEM 151/151L (4) – General Chemistry with Lab (Core: ESTI & CQUR (lab only))
- _____ CHEM 152/152L (4) – General Chemistry with Lab
- _____ MATH 150 (4) – Calculus I (Core: Math Reasoning and Problem Solving [CMRP])
- _____ PHYS 136/136L (4) – General Physics I with Lab (Core: ESTI & CQUR (lab only))

Upper-Division Requirements (25-27 units)

- _____ EOSC 300 or EOSC 303 (3) – Environmental Issues or Environmental Issues Abroad
- _____ EOSC 301 (4) – Research Applications in Environ. and Ocean Sciences (Core: Adv. Writing [CADW])
- _____ EOSC 314 (4) – Introduction to GIS (Core: CQUR)

Capstone Experience

- _____ EOSC 496 or 498 or 499 (2) – Research, Internship, or Independent Study
- _____ EOSC 492 (1) – Advanced Research Synthesis
- _____ EOSC 495 (1) – Senior Seminar (Core: Oral Communication [CORL])

Electives: Choose 3 courses: 2 courses from the geo/physical group and one from the ecological group. At least 2 of the electives must include labs. One of the geo/physical electives can be interdisciplinary between geo/physical and biological or non-science topics. No more than one of the geo/physical electives can be taken abroad or transferred to USD.

- _____ Geo/physical Elective (See list below): _____
- _____ Geo/physical Elective (See list below): _____
- _____ Ecological Elective (See list below): _____

Note that courses in blue are common to all three pathways.

Elective Course Options for Environmental Science Pathway

Geo/physical courses:

- (3) EOSC 355 – Environmental Chemistry
- (3-4) EOSC 402 – Topics in Marine Geo/Physical/Chemical Science
- (3-4) EOSC 403 – Topics in Geo/Physical/Chemical Science
- (4) EOSC 415 – Advanced GIS
- (4) EOSC 420 – Introduction to Remote Sensing
- (4) EOSC 450 – Geological Oceanography
- (4) EOSC 452 – Environmental and Ocean Geochemistry
- (4) EOSC 473 – Climatology
- (3-4) EOSC 474/EOSC 475 – History of the Earth and Climate with or without Lab
- (4) EOSC 480 – Geology and Human Health
- (3) EOSC 481 – Natural Resources of Death Valley
- (4) EOSC 482 – Coastal Processes
- (4) EOSC 485 – Environmental Geology
- (4) EOSC 487 – Surface Water Hydrology
- (4) EOSC 488 – Geomorphology

Ecological courses:

- (3-4) EOSC 400 – Topics in Ecology
- (3-4) EOSC 430/EOSC 431 – Human Impacts on the Coastal Environment with or without Lab
- (4) EOSC 433 – Plankton Ecology
- (3-4) EOSC 434/EOSC 435 – Wetlands Ecology with or without Lab
- (3-4) EOSC 436/EOSC 437 – Marine Community Ecology with or without Lab
- (3-4) EOSC 438/EOSC 439 – Animal Behavioral Ecology with or without Lab
- (4) EOSC 440 – Mathematical Modeling in Ecology
- (4) EOSC 451 – Biological Oceanography

Interdisciplinary Courses with Geo/physical Component:

- (3) EOSC 380 – Global Environmental Health
- (3-4) EOSC 406 – Topics in Interdisciplinary Environmental Science

Or approved study abroad courses (talk to your advisor early if you are planning on studying abroad!)

Note: Some upper-division electives in EOSC may count for Advanced Integration depending on the semester.
Check the list of electives for the current semester and/or talk to your advisor

Environmental and Ocean Sciences Major: Environmental Science Pathway (BS)
Advisement Checklist (differences from the BA are highlighted in yellow)

Preparation for the major (35 units):

- _____ EOOSC 123 (4) – Organisms and Ecosystems (Core: Scientific Inquiry [ESTI] & Quantitative Reasoning [CQUR])
- _____ EOOSC 110 or EOOSC 105 (4) – The Dynamic Earth or Natural Disasters (Core: ESTI & CQUR)
- _____ EOOSC 220 (4) – Introduction to Atmospheric and Ocean Sciences
- _____ EOOSC 222 (3) – Environmental Data Analysis (Core: CQUR)
- _____ CHEM 151/151L (4) – General Chemistry with Lab (Core: ESTI & CQUR (lab only))
- _____ CHEM 152/152L (4) – General Chemistry with Lab
- _____ MATH 150 (4) – Calculus I (Core: Math Reasoning and Problem Solving [CMRP])
- _____ PHYS 136/136L (4) – General Physics I with Lab (Core: ESTI & CQUR (lab only))
- _____ **Additional STEM prep** (4): choose from CHEM 301/301L, MATH 151, or PHYS 137/137L

Upper-Division Requirements (32-35 units)

- _____ EOOSC 300 or EOOSC 303 (3) – Environmental Issues or Environmental Issues Abroad
- _____ EOOSC 301 (4) – Research Applications in Environ. and Ocean Sciences (Core: Adv. Writing [CADW])
- _____ EOOSC 314 (4) – Introduction to GIS (Core: CQUR)

Capstone Experience

- _____ EOOSC 496 or 498 or 499 (2) – Research, Internship, or Independent Study
- _____ EOOSC 492 (1) – Advanced Research Synthesis
- _____ EOOSC 495 (1) – Senior Seminar (Core: Oral Communication [CORL])

Electives: Choose 5 courses: At least one from the Ecological group and at least three from the Geo/Physical group (the fifth course can be any EOOSC science course). At least three of the five courses must include labs. One of the geo/physical electives can be interdisciplinary between geo/physical and biological or non-science topics. No more than one of the geo/physical electives can be taken abroad or transferred to USD.

- _____ Geo/physical Elective (See list below): _____
- _____ Geo/physical Elective (See list below): _____
- _____ **Geo/physical Elective (See list below):** _____
- _____ Ecological Elective (See list below): _____
- _____ **Open EOOSC Science Elective (See list below):** _____

Note that courses in blue are common to all three pathways.

Elective Course Options for Environmental Science Pathway

Geo/physical courses:

- (3) EOSC 355 – Environmental Chemistry
- (3-4) EOSC 402 – Topics in Marine Geo/Physical/Chemical Science
- (3-4) EOSC 403 – Topics in Geo/Physical/Chemical Science
- (4) EOSC 415 – Advanced GIS
- (4) EOSC 420 – Introduction to Remote Sensing
- (4) EOSC 450 – Geological Oceanography
- (4) EOSC 452 – Environmental and Ocean Geochemistry
- (4) EOSC 473 – Climatology
- (3-4) EOSC 474/EOSC 475 – History of the Earth and Climate with or without Lab
- (4) EOSC 480 – Geology and Human Health
- (3) EOSC 481 – Natural Resources of Death Valley
- (4) EOSC 482 – Coastal Processes
- (4) EOSC 485 – Environmental Geology
- (4) EOSC 487 – Surface Water Hydrology
- (4) EOSC 488 – Geomorphology

Ecological courses:

- (3-4) EOSC 400 – Topics in Ecology
- (3-4) EOSC 430/EOSC 431 – Human Impacts on the Coastal Environment with or without Lab
- (4) EOSC 433 – Plankton Ecology
- (3-4) EOSC 434/EOSC 435 – Wetlands Ecology with or without Lab
- (3-4) EOSC 436/EOSC 437 – Marine Community Ecology with or without Lab
- (3-4) EOSC 438/EOSC 439 – Animal Behavioral Ecology with or without Lab
- (4) EOSC 440 – Mathematical Modeling in Ecology
- (4) EOSC 451 – Biological Oceanography

Interdisciplinary Courses with Geo/physical Component:

- (3) EOSC 380 – Global Environmental Health
- (3-4) EOSC 406 – Topics in Interdisciplinary Environmental Science

Other EOSC Science courses:

- (4) EOSC 350 – Invertebrate Zoology
- (3-4) EOSC 401 – Topics in Environmental Biology
- (4) EOSC 462 – Biology of Fishes
- (3) EOSC 465 – Marine Mammals

Or approved study abroad courses (talk to your advisor early if you are planning on studying abroad!)

Note: Some upper-division electives in EOSC may count for Advanced Integration depending on the semester. Check the list of electives for the current semester and/or talk to your advisor

Environmental and Ocean Sciences Major: Environmental Studies Pathway (BA)
Advisement Checklist

Preparation for the major (31 units):

- _____ EOSC 123 (4) – Organisms and Ecosystems (Core: Scientific Inquiry [ESTI] & Quantitative Reasoning [CQUR])
- _____ EOSC 110 or EOSC 105 (4) – The Dynamic Earth or Natural Disasters (Core: ESTI & CQUR)
- _____ EOSC 220 (4) – Introduction to Atmospheric and Ocean Sciences
- _____ EOSC 222 (3) – Environmental Data Analysis (Core: CQUR)
- _____ CHEM 151/151L (4) – General Chemistry with Lab (Core: ESTI & CQUR (lab only))
- _____ MATH 115 (3) – College Algebra (or MATH 150 or 151) (Core: Math Reasoning and Problem Solving [CMRP])
- _____ ECON 101 (3) – Principles of Microeconomics (Core: Social and Behavioral Inquiry [ESBI])
- _____ POLS 150 (3) – Intro to Comparative Politics (Core: ESBI)
- _____ Choose one of: POLS 120 *or* POLS 170 *or* ECON 102 *or* SOCI 101 (3)
(Core: ESBI (all) & Domestic Diversity Level 1 [FDD1] (SOCI 101 only))

Upper-Division Requirements (30-32 units)

- _____ EOSC 300 or EOSC 303 (3) – Environmental Issues or Environmental Issues Abroad
- _____ EOSC 301 (4) – Research Applications in Environ. and Ocean Sciences (Core: Adv. Writing [CADW])
- _____ EOSC 305 (3) – Environmental Assessment Practices
- _____ EOSC 314 (4) – Introduction to GIS (Core: CQUR)
- _____ PHIL 338 or 344 (3) – Environmental Ethics or Environmental Justice (Core: Ethical Inquiry [FETI])

Capstone Experience

- _____ EOSC 496 or 498 or 499 (2) – Research, Internship, or Independent Study
- _____ EOSC 492 (1) – Advanced Research Synthesis
- _____ EOSC 495 (1) – Senior Seminar (Core: Oral Communication [CORL])

Electives: Choose 3 courses: one science with lab, one non-science, and one from either list. An interdisciplinary EOSC course can also be used as the open elective.

- _____ Science with lab course with a focus on Human-Environ. Interactions: _____
- _____ Non-science *or* Interdisciplinary elective (See list on back): _____
- _____ Open elective*: _____
*can be another EOSC science, non-science, or interdisciplinary elective, or another EOSC elective from lists in other pathways

Note that courses in blue are common to all three pathways.

Elective Course Options for Environmental Studies Pathway

Science with lab courses with a focus on Human-Environment Interaction:

- (3) EOSC 355 – Environmental Chemistry
- (4) EOSC 415 – Advanced GIS
- (4) EOSC 420 – Introduction to Remote Sensing
- (4) EOSC 430 – Human Impacts on the Coastal Environment with Lab
- (4) EOSC 434 – Wetlands Ecology with Lab
- (4) EOSC 436 – Marine Community Ecology with Lab
- (4) EOSC 438 – Animal Behavioral Ecology with Lab
- (4) EOSC 450 – Geological Oceanography
- (4) EOSC 452 – Environmental and Ocean Geochemistry
- (4) EOSC 473 – Climatology
- (4) EOSC 474 – History of the Earth and Climate with Lab
- (4) EOSC 480 – Geology and Human Health
- (3) EOSC 481 – Natural Resources of Death Valley
- (4) EOSC 485 – Environmental Geology
- (4) EOSC 487 – Surface Water Hydrology
- (4) EOSC 488 – Geomorphology

Non-science courses:

- (3) CHEM 356 – Water Quality and Public Health in the Developing World
 - (3) ECON 308 – Environmental and Natural Resource Economics
 - (3-4) EOSC 404 – Topics in Environmental Studies
 - (3) HIST 370 – U.S. Environmental History (Core: Historical Inquiry [EHSI])
 - (3) POLS 329 – Law of the Sea
 - (3) POLS 346 – Food and Politics (Core: Global Diversity Level 2 [FDG2])
 - (3) POLS 347 – Culture and Environmental Politics
 - (3) POLS 348 – Indigenous Peoples and the Environment (Core: FDG2)
 - (3) POLS 349 – Politics and the Environment
 - (3) SOCI 315 – Health and Society
 - (3) SOCI 471 – Environmental Inequality and Justice (Core: FDG2)
 - (3) SOCI 473 – Sustainability: Sociological Perspectives (Core: Advanced Integration [CINT])
 - (3) THRS 338 – Faith and Environmental Justice (Core: Theology and Religious Inquiry [FTRI] & FDD1)
- Other upper-division courses by approval in ECON, ETHN, HIST, INST, PHIL, POLS, SOCI, and THRS

Interdisciplinary EOSC Courses:

- (3) EOSC 380 – Global Environmental Health
- (3-4) EOSC 405 – Topics in Interdisciplinary Environmental Science and Studies
- (3-4) EOSC 406 – Topics in Interdisciplinary Environmental Science

Or approved study abroad courses (talk to your advisor early if you are planning on studying abroad!)

Note: Some upper-division electives in EOSC may count for Advanced Integration depending on the semester. Check the list of electives for the current semester and/or talk to your advisor

Environmental and Ocean Sciences Minor

Advisement Checklist

Environmental and Ocean Sciences Minor (18-19 units):

Take 2 of the following lower division prep courses. See list below:

_____ Lower division prep #1 _____

_____ Lower division prep #2 _____

Lower division prep options:

EOSC 123 (4) – Organisms and Ecosystems (Core: Scientific Inquiry [ESTI] & Quantitative Reasoning [CQR])

EOSC 110 or EOSC 105 (4) – The Dynamic Earth or Natural Disasters (Core: ESTI & CQR)

EOSC 175 (3) – Global Sustainability and Climate Change * (Core: CQR)

Take both of the courses below:

_____ EOSC 220 (4) – Introduction to Atmospheric and Ocean Sciences

_____ EOSC 300 or EOSC 303 (3) – Environmental Issues or Environmental Issues Abroad

Electives: Choose one upper-division science course:

_____ Science Elective (See list below)*:

* students who take EOSC 175 need to take a 4-unit course for their science elective to reach 18 units

Elective Course Options for Environmental and Ocean Sciences Minor

Science courses:

(4) EOSC 314 – Introduction to GIS

(4) EOSC 350 – Invertebrate Zoology

(3) EOSC 355 – Environmental Chemistry

(3-4) EOSC 400 – Topics in Ecology

(3-4) EOSC 401 – Topics in Environmental Biology

(3-4) EOSC 402 – Topics in Marine Geo/Physical/Chemical Science

(3-4) EOSC 403 – Topics in Geo/Physical/Chemical Science

(3-4) EOSC 405 – Topics in Interdisciplinary Environmental Science

(4) EOSC 415 – Advanced GIS

(4) EOSC 420 – Introduction to Remote Sensing

(3-4) EOSC 430/EOSC 431 – Human Impacts on the Coastal Environment with or without Lab

(4) EOSC 433 – Plankton Ecology

(3-4) EOSC 434/EOSC 435 – Wetlands Ecology with or without Lab

(3-4) EOSC 436/EOSC 437 – Marine Community Ecology with or without Lab

(3-4) EOSC 438/EOSC 439 – Animal Behavioral Ecology with or without Lab

(4) EOSC 440 – Mathematical Modeling in Ecology

(4) EOSC 450 – Geological Oceanography

(4) EOSC 451 – Biological Oceanography

(4) EOSC 452 – Environmental and Ocean Geochemistry

(4) EOSC 462 – Biology of Fishes

(3) EOSC 465 – Marine Mammals

(4) EOSC 473 – Climatology

(3-4) EOSC 474/EOSC 475 – History of the Earth and Climate with or without Lab

(4) EOSC 480 – Geology and Human Health

(3) EOSC 481 – Natural Resources of Death Valley

(4) EOSC 482 – Coastal Processes

(4) EOSC 485 – Environmental Geology

(4) EOSC 487 – Surface Water Hydrology

(4) EOSC 488 – Geomorphology

And approved study abroad courses

Environmental Studies and Policy Minor

Advisement Checklist

Environmental Studies and Policy Minor (20-21 units):

Take 2 of the following lower division prep courses. See list below:

_____ Lower division prep #1 _____
_____ Lower division prep #2 _____

Lower division prep options:

EOSC 123 (4) – Organisms and Ecosystems (Core: Scientific Inquiry [ESTI] & Quantitative Reasoning [CQR])

EOSC 110 or EOSC 105 (4) – The Dynamic Earth or Natural Disasters (Core: ESTI & CQR)

EOSC 175 (3) – Global Sustainability and Climate Change (Core: CQR)

Take:

_____ EOSC 300 or EOSC 303 (3) – Environmental Issues or Environmental Issues Abroad

^Note: EOS Majors (Marine Ecology and Environmental Science pathways only) can minor in Environmental Studies and Policy, but need to take EOSC 305 or POLS 349 in place of EOSC 300 for this minor.

Electives: Choose 3 upper-division courses: at least two must be non-science or interdisciplinary courses (see list below) and third elective can be any EOSC elective.

_____ Non-science or Interdisciplinary Elective (See list below): _____

_____ Non-science or Interdisciplinary Elective (See list below): _____

_____ Open Elective*: _____

*can be another EOSC non-science, or interdisciplinary elective, or EOSC science elective with or without lab (see EOS minor checklist for list of science courses)

Elective Course Options for Environmental Studies and Policy Minor

Non-science courses:

(3) CHEM 356 – Water Quality and Public Health in the Developing World

(3) ECON 308 – Environmental and Natural Resource Economics

(3-4) EOSC 404 – Topics in Environmental Studies

(3) HIST 370 – U.S. Environmental History (Core: Historical Inquiry [EHSI])

(3) POLS 329 – Law of the Sea

(3) POLS 346 – Food and Politics (Core: Global Diversity Level 2 [FDG2])

(3) POLS 347 – Culture and Environmental Politics

(3) POLS 348 – Indigenous Peoples and the Environment (Core: FDG2)

(3) POLS 349 – Politics and the Environment

(3) SOCI 315 – Health and Society

(3) SOCI 471 – Environmental Inequality and Justice (Core: FDG2)

(3) SOCI 473 – Sustainability: Sociological Perspectives (Core: Advanced Integration [CINT])

(3) THRS 338 – Faith and Environmental Justice (Core: Theology and Religious Inquiry [FTRI] & FDD1)

Other upper-division courses by approval in ECON, ETHN, HIST, INST, PHIL, POLS, SOCI, and THRS

Interdisciplinary EOSC Courses:

(3) EOSC 380 – Global Environmental Health

(3-4) EOSC 405 – Topics in Interdisciplinary Environmental Science and Studies

(3-4) EOSC 406 – Topics in Interdisciplinary Environmental Science