



Figure 1: From the Anthropocene exhibition at the Art Gallery of Ontario AGO in Toronto.

Environmental Analysis Course Plans

November 14, 2024

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Sustainable Built Environment

Faculty Advisor(s)

- Char Miller (Professor of Environmental Analysis)

Affiliated Faculty

- Lance Neckar (Professor of Environmental Analysis – Pitzer)
- George Gorse (Professor of Art History)
- Albert Park (Professor of History – CMC)

Description

The Sustainability and the Built Environment Concentration (SBE) focuses on urban planning, design and architecture.

The SBE course plan interrogates the built environment, whether urban, suburban, or rural (and every place in between). It is designed for students seeking a comprehensive curriculum that is focused on how to plan, design, construct and manage communities from a more sustainable perspective. Learn about the latest planning approaches and policy/regulatory requirement; green architecture, sustainable site design and landscapes; renewable energy and energy efficiency; sustainable water resources management; and green infrastructure. Acquire the skills necessary to integrate sustainable design principles into long-range visions and the day-to-day development and management of the built environment.

Course Requirements (12 Courses)

Core Courses Complete all three of these following:

- EA010 – Introduction to Environmental Analysis (every semester)
- EA020 – Society, Culture and Environment (every semester)
- EA030 – Science and the Environment (every semester)

Senior Exercise Complete one of the following:

- EA190 PO – Senior Clinic (every spring)
- EA191 PO – Senior Thesis (every fall)

Design and Representation Complete at least one design and representation course. For example, ART005 PO, ART010 PO, ART020 PO, ART021 PO, ART101 SC, ART105 SC, ART120 SC, ART121 SC, ART125 SC, EA101 PO.

Design Studio/Labs Complete at least one design studio course or lab. Examples might include: EA133 PZ, EA134 PZ, EA185 PO.

Electives Elective courses in SBE should be selected in close consultation with the major adviser and coordinator. Select five courses from the following or similar options, generally no more than two from a group:

- Urban history, geography, theory and ecology
- Design and Planning
- Environmental Justice/Policy/Economics/Sociology

Electives might include: ANTH113 SC, ANTH144 PO, ARHI188 SC, ARHS179 PO, EA130 PZ, BIOL104 PO, BIOL104 PO, BIOL108 PO, EA085 PO, EA106 PZ, EA171 PO, EA172 PO, EA173 PO, EA180 PO, EA189F PO, EA189M PO, GEOG 179 HM, PHIL037 PO, POLI060 PO, POLI061 PO.

Race, Class, and Gender

Faculty Advisor(s)

- Aimee Bahng (Associate Professor of Gender and Women Studies)

Affiliated Faculty

- Erin Runions (Professor of Religious Studies)
- TBD (Scripps)
- TBD (Scripps)

Description

The Race, Class, and Gender course plan explores the implications of race, class, and gender on environmental problem-solving and decision making. Students apply theory and approaches in analyzing race, class, and gender to clarify and respond to environmental issues. Students will critically evaluate, synthesize, and analyze environmental issues using the scholarly literature on the intersection of race, class and gender constructions and how these define access to resources and exposure to hazards.

Course Requirements (12 Courses)

Core Courses Complete all three of these following:

- EA010 – Introduction to Environmental Analysis (every semester)
- EA020 – Society, Culture and Environment (every semester)
- EA030 – Science and the Environment (every semester)

Senior Exercise Complete one of the following:

- EA190 PO – Senior Clinic (every spring)
- EA191 PO – Senior Thesis (every fall)

Environmental Justice Select one of the following courses:

CourseNo	Title	Offered
ANTH144 PO	Anthropology of Environmental Justice	irregularly
EA086	Environmental Justice	Spring 2025
EA099 PO	Urban Health Equity	irregularly
GWS172 PO	Race, Gender & Environment	every spring

Area and Ethnic?? Studies Select three courses from one of the Area Studies or Studies, one of which must be an introductory, and two of which must be in the same program or department. Two courses can overlap between categories where intersectionality is a central component of the course.

- Chicanx-Latinx Studies ([Intercollegiate Course Catalog](#))
- Asian American Studies ([5C Asian American Course Catalog](#))
- Asian Studies ([5C Asian Studies Course Catalog](#))
- Africana Studies ([Intercollegiate Department of Africana Studies](#))
- Russian and Eastern European Studies ([Current Russian and REES Courses](#))
- Middle Eastern Studies ([5C Middle-East Studies Course Catalog](#))
- German Studies ([German Studies Major](#))
- Latin American Studies ([Latin American Studies Major](#))

Class Select three courses that focus on class (by agreement with the advisor), e.g. Labor History, Economics of Economics, Globalization, and Colonization. The courses below might be examples:

CourseNo	Title	Offered
ECON122 PO	Poverty and Income Distribution	Spring, alternate years
GEOG175 HM	Geographies of Labor	TBD

Gender Select three courses in Gender Studies:

CourseNo	Title	Offered
EA162 PZ	Gender, Environment & Development	TBD
GWS026 PO	Introduction to Gender Studies	every semester
GWS180 PO	Queer and Feminist Theories	last offered fall 2019
HIST101V PO	Gender, Sexuality and Feminisms in Modern East Asia	Last offered Fall 2017

Environmental Analysis—Economics

Faculty Advisor(s)

- Bowman Cutter (Associate Professor of Economics)

Affiliated Faculty

- TBD (Scripps)

Description

The most important questions concerning the environment often concern the interactions between production, consumption, and the environment. Economics provides the analytical and computational tools to understand how economic and policy decisions affect the environment and in turn how the environment affects the economy. Students in EA-Econ often go on to careers in energy, environmental consulting, urban planning, and other careers that require an understanding of the linkages between economics, the environment, and human well-being.

Course Requirements (12 Courses)

Core Courses Complete all three of these following:

- EA010 – Introduction to Environmental Analysis (every semester)
- EA020 – Society, Culture and Environment (every semester)
- EA030 – Science and the Environment (every semester)

Senior Exercise Complete one of the following:

- EA190 PO – Senior Clinic (every spring)
- EA191 PO – Senior Thesis (every fall)

Foundations of Economics EA-Econ students will take the following 4 courses to provide a basic background knowledge with the following courses:

- ECON051 – Introduction to Macroeconomics (every semester)
- ECON052 – Introduction to Microeconomics (every semester)
- ECON057 PO – Economics Statistics (every semester)
- ECON102 PO – Microeconomic Theory (every semester)

Environmental Applications to build content specialization, EA-Econ students will take two of the following 4 courses:

- ECON124 PO – Water Resource Economics and Management (irregularly)
- ECON125 PO – Natural Resource Economics and Policy (Spring 2025)
- ECON127 PO – Environmental Economics (every fall)

Methods EA-Econ students must take atleast one methods course prior to the senior capstone course:

- ECON107 PO – Applied Econometrics (every semester)
- ECON150+ PO – Other higher-level course (every semester)

Electives One of the courses or an acceptable substitute from each of the following two categories to provide additional insight into the field:

Public Policy Analysis and Politics (Potential Available Courses = 8)

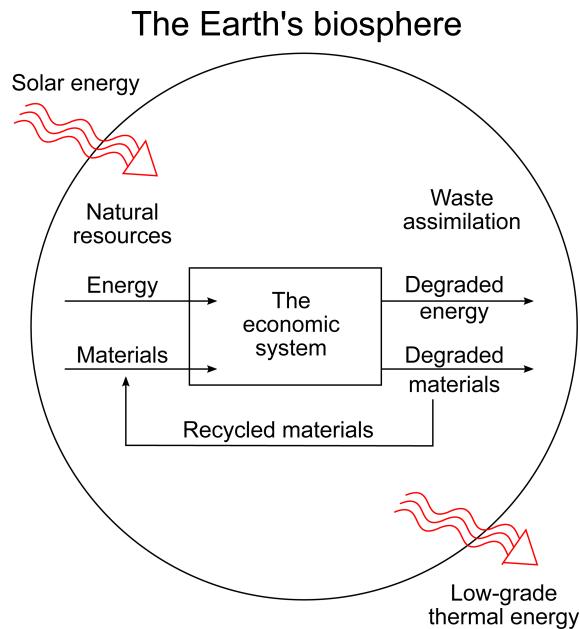


Figure 2: Diagram describing the flow of natural resources through the economy: Valuable resources are procured from nature by the input end of the economy; the resources flow through the economy, being transformed and manufactured into goods along the way; and invaluable waste and pollution eventually accumulate by the output end. Recycling of material resources is possible, but only by using up some energy resources as well as an additional amount of other material resources; and energy resources, in turn, cannot be recycled at all, but are dissipated as waste heat.

- EA189M PO – Desert Conservation Field Seminar (irregularly)
- POLI039 PO – Politics of Environmental Justice (delisted)
- POLI060 PO – Global Politics of Food and Agriculture (every spring)
- POLI061 PO – Global Politics of Water (Fall 2023)
- POST115 HM – Comparative Environmental Politics (TBD)
- POST140 HM – Global Environmental Politics (Fall 2024)
- PPA001 PO – Introduction to Public Policy Analysis (every fall)
- SOSC180 HM – Tropical Forests: Policy and Practice (TBD)

Natural Sciences (Potential Courses Available = 5)¹

- CHEM112 PO – Analysis of Scientific Literature (delisted)
- EA085 PO – Food, Land, and Environment (Spring 2029)
- EA103 NS – Soils and the Environment (Spring 2025)
- GEOL 20C PO – Environmental Geology (Spring 2025)
- GEOL20G PO – Climate Change (Fall 2024)

¹higher level environmental related science courses with pre-requisites are likely to be approved; please clear with advisor

Environmental Geology

Faculty Advisor(s)

- Jade Star Lackey (Professor of Geology)

Affiliated Faculty

- Colin Robbins (Associate Professor of Environmental Analysis – Natural Sciences Department)
- Bob Gaines (Professor of Geology)
- Eric Grofils (Professor of Geology)

Description

The Geology and the Environment concentration is designed for students interested in the interaction of humans with Earth's geology and physical systems.

Course Requirements (12 Courses)

Core Courses Complete all three of these following:

- EA010 – Introduction to Environmental Analysis (every semester)
- EA020 – Society, Culture and Environment (every semester)
- EA030 – Science and the Environment (every semester)

Senior Exercise Complete one of the following:

- EA190 PO – Senior Clinic (every spring)
- EA191 PO – Senior Thesis (every fall)

Geologic Introductions Take one of the following courses: GEOL020A PO, GEOL020B PO, GEOL020C PO, GEOL020D PO, GEOL020G PO.

Geographic Information Systems Take one of the following courses:

- EA101 PO – Just GIS! (Spring 2025)
- GEOL189G PO – Introduction to GIS for Geologists (Spring 2025)

Geologic Foundations Take four of the foundation courses in Geology from) potential courses:

- EA055L NS – Phys Geography and Geomorphology (TBD)
- EA103 NS – Soils and the Environment (Spring 2025)
- GEOL112 PO – Remote Sensing (delisted)
- GEOL120 PO – Introduction to Geochemistry (Maybe 2026)
- GEOL125 PO – Earth History (Spring 2025)

Geological Interfaces Take two courses from one of the following categories courses:

Chemical Interfaces: Take two introductory chemistry sources:

- CHEM001A PO – General Chemistry (every fall)
- CHEM001B PO – General Chemistry (every spring)
- CHEM051 PO – General Chemistry – Accelerated (Fall 2026)
- CHEM023A – General Chemistry Applications I (Fall 2025)
- CHEM023B – General Chemistry Applications II (Spring 2026)

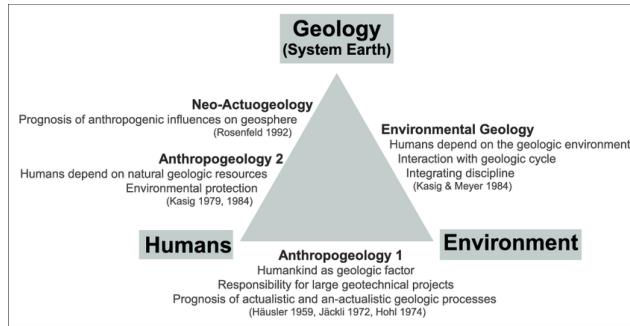


Figure 3: Graphic illustration of the two different concepts of anthropogeology, of environmental geology and neo-actuogeology in the context between geology, humans and environment (modified from Husler Jr, 2016).

Biological Interfaces: Take two biology² from 11 potential courses:

- BIOL040 PO – Introduction of Genetics (every fall)
- BIOL041E PO – Introductory Ecology and Evolutionary Biology (every spring)
- BIOL104 PO – Conservation Science (every spring)
- BIOL104 PO – Fire Ecology (irregularly)
- BIOL106 PO – Aquatic Ecology (Fall 2024)
- BIOL107 PO – Invasion Biology (Last offered Spring 2024)
- BIOL108 PO – Data Science of Conservation (Spring 2025)
- BIOL116 PO – Ecology and Evolution of Plants (Last offered Spring 2023)
- BIOL121 PO – Insect Ecology and Behavior (Fall 2024)
- BIOL180 PO – Microbial Ecology (Spring 2025)

Historical Interfaces: Take from the following list of courses:

- HIST068 CM – Disasters in the Ancient Mediterranean (TBD)
- HIST096 CM – The Amazon (TBD)
- HIST101A PO – Indian Ocean World (last offered spring 2020)
- HIST101AC PO – Dark Ecologies (fall alternate years)
- HIST101E PO – Science and Empire (Last offered fall 2023)
- HIST186 PO – Climate in History (Spring 2025)
- HIST113 CM – US Environmental History (Spring 2025)
- HIST118?? – Native American History (Last offered spring 2023)
- HIST120 CM – History of the American West (NA)
- HIST158 PZ – Ecological History (TBD)

²most have prerequisites

Environmental Biology

Faculty Advisor(s)

- Fran Hanzawa (Associate Professor of Biology)

Affiliated Faculty

- Charlotte Chang (Assistant Professor of Biology and Environmental Analysis)
- Nina Karnovsky (Professor of Biology)
- Wallace "Marty" Meyer (Associate Professor of Biology)

Description

In the EA Biology course plan, students will focus their Environmental Analysis major by incorporating the biological sciences into their training, and focusing on methods of biological inquiry and understanding biological concepts.

Only one of the upper division Biology courses can be satisfied with a course from a study abroad program or domestic program. Pomona students may take courses that count towards the major at the other 5Cs if it is not offered at Pomona College.³

Many upper division biology courses have Biology 41C PO Intro Cell Chemistry and Cell Biology w/lab as a prerequisite. In addition, the EA-Biology faculty also strongly recommend taking organic chemistry (CHEM 110A and 110B), mathematics and statistics (MATH 31 or MATH 60 and MATH 58 or MATH 58B).

Students interested in public policy might consider PPA-EA or PPA-Biology.

Course Requirements (12 Courses)

Core Courses Complete all three of these following:

- EA010 – Introduction to Environmental Analysis (every semester)
- EA020 – Society, Culture and Environment (every semester)
- EA030 – Science and the Environment (every semester)

Senior Exercise Complete one of the following:

- EA190 PO – Senior Clinic (every spring)
- EA191 PO – Senior Thesis (every fall)

Foundations in Biology The following course are required.

- BIOL040 PO – Introduction of Genetics (every fall)
- BIOL041E PO – Introductory Ecology and Evolutionary Biology (every spring)
- CHEM001A PO – General Chemistry (every fall)
- CHEM001B PO – General Chemistry (every spring)

CHEM051 substitute for CHEM001A and CHEM001B.

Biology Lab-based courses Student will take 2 of the 13 following courses:

- BIOL104 PO – Conservation Science (every spring)
- BIOL106 PO – Aquatic Ecology (Fall 2024)
- BIOL107 PO – Invasion Biology (Last offered Spring 2024)
- BIOL108 PO – Data Science of Conservation (Spring 2025)
- BIOL112 PO – Advanced Animal Ecology (Last offered Spring 2024)

³Can be waived by advisor.

- BIOL116 PO – Ecology and Evolution of Plants (Last offered Spring 2023)
- BIOL125 PO – Animal Behavior (Alt years - next Fall 2025)
- BIOL132 PO – Vertebrate Biology (Last offered Fall 2022)
- BIOL140 PO – Animal Physiology (Every Fall)
- BIOL166 PO – Plant Physiology (Last offered Fall 2023)
- BIOL169 PO – Developmental Biology (Every Spring)
- BIOL180 PO – Microbial Ecology (Spring 2025)
- BIOL181 PO – Fire Ecology (Last offered Spring 2015)

Seminar and Geology Options Students will take an additional biology lab course or one of the following courses:

- BIOL104 PO – Fire Ecology (irregularly)
- GEOL 20C PO – Environmental Geology (Spring 2025)
- GEOL20G PO – Climate Change (Fall 2024)

Social Sciences EA-Biology students should also take an applicable social science course with consultation with their advisor. Below are potential options:

CourseNo	Title	Offered
1	ANTH144 PO Anthropology of Environmental Justice	irregularly
2	ANTH159 PO Anthropology of Food	TBD
3	EA189F PO California Beaches	Fall 2025
4	EA189G PO History of Energy and Social Justice	irregularly
5	EA189M PO Desert Conservation Field Seminar	irregularly
6	ECON125 PO Natural Resource Economics and Policy	Spring 2025
7	ECON127 PO Environmental Economics	every fall
8	ECON128 PO Energy Economics and Policy	Spring 2025
9	POLI060 PO Global Politics of Food and Agriculture	every spring
10	POLI061 PO Global Politics of Water	Fall 2023
11	POST115 HM Comparative Environmental Politics	TBD
12	POST140 HM Global Environmental Politics	Fall 2024
13	PSYC180C PO Seminar: Psychology of Climate Change	Spring 2025
14	SOC102 PO Qualitative Research Methods	TBD
15	SOC189H PO Africa, the Environment, and the Global Economy	TBD
16	SOC189J PO Global Environmental Sociology	TBD
17	SOSC180 HM Tropical Forests: Policy and Practice	TBD

- ANTH144 PO – Anthropology of Environmental Justice (irregularly)
- ANTH159 PO – Anthropology of Food (TBD)
- EA189F PO – California Beaches (Fall 2025)
- EA189G PO – History of Energy and Social Justice (irregularly)

Environmental Chemistry

Faculty Advisor(s)

- Chuck Taylor (Professor of Chemistry)

Affiliated Faculty

- Marc Los Huertos (Associate Professor of Environmental Analysis)
- Professor

Description

The EA-Chemistry provides students tools for understand the transport and fate of toxins in the environment, including heavy metals, metalloids, and natural and synthetic organic chemicals mobilized by manufacturing, mining, drilling, and combustion.

Course Requirements (XX Courses)

Core Courses Complete all three of these following:

- EA010 – Introduction to Environmental Analysis (every semester)
- EA020 – Society, Culture and Environment (every semester)
- EA030 – Science and the Environment (every semester)

Senior Exercise Complete one of the following:

- EA190 PO – Senior Clinic (every spring)
- EA191 PO – Senior Thesis (every fall)

General Chemistry Complete one of the following series:

- CHEM001A PO(Offered every fall) and CHEM001B PO(Offered every spring)
- CHEM051 PO(Offered Fall 2026) and CHEM023A(Offered Fall 2025)
- CHEM023B(Offered Spring 2026)

Foundation in Chemistry Complete all of the following courses:

CourseNo	Title	Offered
CHEM110A PO	Organic Chemistry 1	every fall
CHEM156 PO	Physical Chemistry in Molecular Biology	every Spring
CHEM161 PO	Advance Analytical Chemistry	each fall
CHEM191 PO	Senior Literature Thesis	each semester
MATH030 PO	Calculus I	every semester
MATH031 PO	Calculus II	every semester
PHYS041 PO	General Physics I	every fall
PHYS042 PO	General Physics II	every spring

Environmental Chemistry Take one of the following:

- CHEM106 PO – Environmental Chemistry (every spring)
- CHEMI139 NS – Environmental Chemistry (irregularly)

Environmental Physics & Engineering

Faculty Advisor(s)

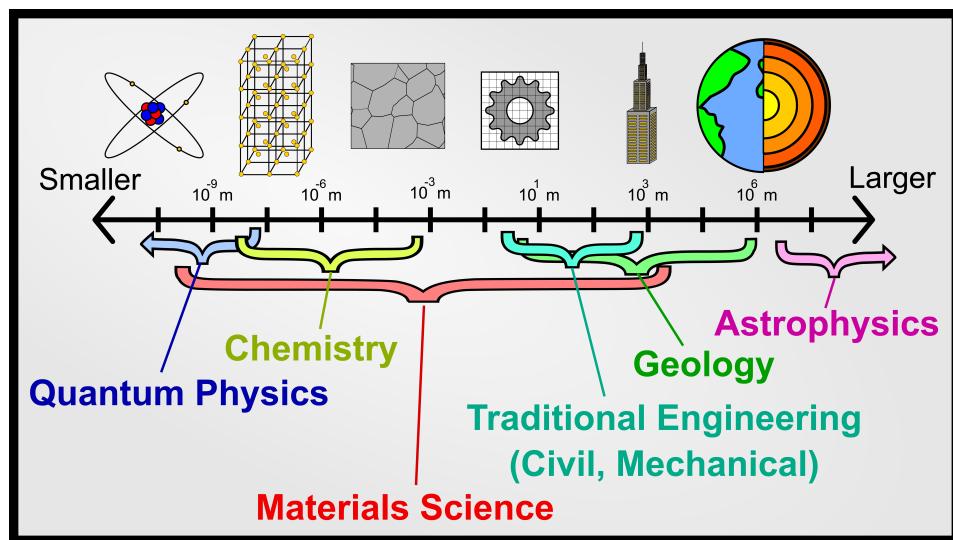
- Dwight Whittaker (Professor of Physics and Astronomy)

Affiliated Faculty

- David Tanenbaum (Professor of Physics and Astronomy)

Description

This course plan combines the principles of physics with engineering practices to study and solve environmental problems, essentially using physics to understand and design solutions. Topics might include the analysis of energy transfer, fluid dynamics, and other physical phenomena within environmental systems or how to design materials for a green economy.



Course Requirements (11/12 Courses)

Core Courses Complete all three of these following:

- EA010 – Introduction to Environmental Analysis (every semester)
- EA020 – Society, Culture and Environment (every semester)
- EA030 – Science and the Environment (every semester)

Senior Exercise Complete one of the following:

- EA190 PO – Senior Clinic (every spring)
- EA191 PO – Senior Thesis (every fall)

EA-Physics/Engineering majors are required to take the following courses.

Math Depending on math placement results, take one combination of the following two courses;

- MATH031 PO & PHYS139 P0
- MATH032 PO & MATH060 PO

- MATH032 PO & PHYS139 P0
- MATH032S PO & MATH102 PO
- MATH060 PO & MATH067 PO
- MATH060 PO & MATH102 PO
- MATH060 PO & PHYS139 P0

Introductory Physics Take all of the courses from one of the following series:

- PHYS041 PO, PHYS042 PO
- PHYS070 PO, PHYS071 PO, PHYS072 PO

Foundations in Modern Physics

- PHYS101 PO – Foundations of Modern Physics (TBD)

Advanced Topics Take two additional 100+ level courses, e.g. PHYS165 PO – Introduction of Physical Hydrodynamics (TBD), PHYS166 HM – Geophysics (Spring 2025), PHYS185 PO – Introduction to Materials Science (NA).

Quantitative Skills and Environment

Faculty Advisor(s)

- Gabriel Chandler (Professor of Mathematics and Statistics)

Affiliated Faculty

- Ami Radunskaya (Professor of Mathematics and Statistics)
- Charlotte Chang (Associate Professor of Environmental Analysis and Biology)
- Jo Hardin (Professor of Mathematics and Statistics)

Description

Students learn to use mathematical tools and techniques to understand the real-world processes and implications of environmental problem-solving and decision making; apply mathematical and statistical models to clarify and respond to environmental issues; and read, critically evaluate, synthesize, and analyze a range of issues based on data and literature in the mathematical sciences.

Course Requirements (12 Courses)

Core Courses Complete all three of these following:

- EA010 – Introduction to Environmental Analysis (every semester)
- EA020 – Society, Culture and Environment (every semester)
- EA030 – Science and the Environment (every semester)

Senior Exercise Complete one of the following:

- EA190 PO – Senior Clinic (every spring)
- EA191 PO – Senior Thesis (every fall)

Environmental History

Faculty Advisor(s)

- Char Miller (Professor of Environmental Analysis)

Affiliated Faculty

- Pey-Yi Chu (Associate Professor of History)
- Arash Khzaeni (Professor of History)
- TBD (Scripps)
- TBD (CMC)
-

Description

This concentration within PO-EA⁴ is designed to appeal to students interested in studying the relationships between humans and their environments over time and to do so utilizing the methods and frameworks of Environmental Analysis and History. In consultation with their adviser, students will complete a minimum of 12 classes, including the four EA Core courses, five in the History concentration, and three in related fields.

Course Requirements (12 Courses)

Core Courses Complete all three of these following:

- EA010 – Introduction to Environmental Analysis (every semester)
- EA020 – Society, Culture and Environment (every semester)
- EA030 – Science and the Environment (every semester)

Senior Exercise Complete one of the following:

- EA190 PO – Senior Clinic (every spring)
- EA191 PO – Senior Thesis (every fall)

History Concentration Courses In consultation with their adviser, students will take five courses from among those currently offered or similar courses (Note: EA113 CM and EA150 PO cannot both be taken for credit): EA170 PO, EA171 PO, EA172 PO, EA174 PO, HIST055 PZ, HIST096 CM, HIST101A PO, HIST101AC PO, HIST101E PO, HIST101F PO, HIST186 PO, HIST113 CM, HIST158 PZ, HIST331 CG, STS010 HM, HIST 182 CM

Related Fields In consultation with their adviser, students will take three environment-themed classes from such departments as Anthropology, Art History, English, German and Russian, Geology, Philosophy, Politics, and Religion.

⁴for PO students only?

Values and the Environment

Faculty Advisor(s)

- Laura Perini (Professor of Philosophy)

Affiliated Faculty

- Heather Williams (Professor of Politics)
- Juley Tannenbaum (Professor of Philosophy)
- TBD (Scripps)

Description

The Values and the Environment concentration enables students to explore the ethical, legal, social and historical frameworks that have shaped and are shaping urban, agricultural, and natural or quasi-natural environments, as well as the cell-based bodies of plants, animals, fungi and microbes. Students will also focus on economic and health inequalities of human societies created by state forms, market arrangements, and historically-embedded caste systems.

Course Requirements (12 Courses)

Core Courses Complete all three of these following:

- EA010 – Introduction to Environmental Analysis (every semester)
- EA020 – Society, Culture and Environment (every semester)
- EA030 – Science and the Environment (every semester)

Senior Exercise Complete one of the following:

- EA190 PO – Senior Clinic (every spring)
- EA191 PO – Senior Thesis (every fall)

Values Three from the 7 courses to provide a basic background knowledge with the following courses:

- EA099 PO – Urban Health Equity (irregularly)
- EA101 PO – Just GIS! (Spring 2025)
- PHIL057 PO – Philosophy of Teaching (TBD)
- PHIL103? – Philosophy of Science (TBD)
- PHIL104 PO – Philosophy of Science Topics (TBD)
- RLST040 – Religious Ethics (TBD)
- STS010 HM – Introduction to Science, Technology, and Society (TBD)

Social Science Applications to build content specialization, students will take two of the following 30 courses: ANTH012 PZ, ANTH144 PO, ARHS179 PO, EA170 PO, EA174 PO, EA189F PO, EA189G PO, EA189M PO, ECON052, ECON127 PO, ECON128 PO, HIST068 CM, HIST096 CM, HIST101E PO, HIST101F PO, HIST112 PZ, HIST118??, HIST120 CM, HIST184 PO, PHIL037 PO, PHIL190 CM, POLI060 PO, POLI061 PO, POLI071 PO, POLI159 PO, POST115 HM, POST140 HM, PPA001 PO, SOC075 PO, SOC124 PZ