

# Environmental Economics and Policy

## Bachelor of Science (BS)

The Rausser College of Natural Resources offers the undergraduate major in Environmental Economics and Policy (EEP). This major provides an opportunity to explore aspects of economic and political institutions that affect the development and management of natural resources and the environment. The program takes a problem-solving approach to issues involving renewable and fixed natural resources, and it is based on a foundation in microeconomic theory and the economics of resources and the environment. The environmental economics and policy program is offered by the Department of Agricultural and Resource Economics. This major leads to a Bachelor of Science (BS) degree. Students who graduate with a degree in environmental economics and policy go on to a variety of jobs or graduate programs.

### Admission to the Major

Advice on admission for freshmen and transfer students can be found on Rausser College's Admissions Guide website (<http://guide.berkeley.edu/undergraduate/colleges-schools/natural-resources/#admissiontext>) or Rausser College's Prospective Student website (<https://nature.berkeley.edu/prospective-students/>). Freshman students may apply directly to the major or may select Rausser College's undeclared option, and declare the major by the end of their fourth semester. Transfer students may apply directly to the major through Rausser College and, if admitted, be declared as EEP majors.

Information for current Berkeley students who would like to declare the major after admission, including information on a change of major or change of college, please see Chapter 6 of the Rausser College of Natural Resources Undergraduate Student Handbook. (<https://nature.berkeley.edu/handbook/>)

## Honors Program

Students with a GPA of 3.6 or higher may enroll in Rausser College's honors program (H196) once they have reached upper division standing. To fulfill the program requirements, students design, conduct, and report on an individual research project, working with a faculty sponsor. For further information about registration for the honors symposium or the honors requirements, please see Rausser College's website ([http://nature.berkeley.edu/site/honors\\_program.php](http://nature.berkeley.edu/site/honors_program.php)).

## Minor Program

The minor program offers interested students an opportunity to explore aspects of economic and political institutions that affect the development and management of natural resources and the environment. For information regarding how to declare the minor, please contact the department.

In addition to the University, campus, and college requirements, listed on the College Requirements tab, students must fulfill the below requirements specific to their major program.

## General Guidelines

1. All courses taken to fulfill the major requirements below must be taken for graded credit, other than courses listed which are offered on

a *Pass/No Pass* basis only. Other exceptions to this requirement are noted as applicable.

2. A minimum cumulative grade point average (GPA) of 2.0 is required.
3. A minimum GPA of 2.0 in upper division major requirements is required.
4. At least 15 of the 36 required upper division units must be taken in the Rausser College of Natural Resources.
5. A maximum of 16 units of independent study (courses numbered 97, 98, 99, 197, 198, and 199) may count toward graduation, with a maximum of 4 units of independent study per semester.
6. No more than 1/3 of the total units attempted at UC Berkeley may be taken *Pass/No Pass*. This includes units in the Education Abroad Program and UC Intercampus Visitor or Exchange Programs.
7. A maximum of 4 units of physical education courses will count toward graduation.

For information regarding residence requirements and unit requirements, please see the College Requirements tab.

## Lower Division Requirements

### Principles of microeconomics, select one of the following:

ENVECON C1	Introduction to Environmental Economics and Policy [4]
ECON 1	Introduction to Economics [4]
ECON 2	Introduction to Economics--Lecture Format [4]
ECON C3	Introduction to Environmental Economics and Policy [4]

### Calculus, select one of the following sequences:

MATH 1A & MATH 1B	Course Not Available and Course Not Available
MATH 16A & MATH 16B	Analytic Geometry and Calculus and Analytic Geometry and Calculus

### Statistics, select one of the following:

STAT 20	Introduction to Probability and Statistics [4]
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## Upper Division Requirements

### Intermediate microeconomics, select one of the following:

ENVECON 100	Intermediate Microeconomics with Applications to Sustainability [4]
ECON 100A	Microeconomics [4]
ECON 101A	Microeconomics (Quantitative) [4]

### Environmental or natural resource economics

ENVECON C101	Environmental Economics	4
	or ENVECON C Natural Resource Economics	

### Quantitative methods:

ENVECON C11	Introductory Applied Econometrics [4]
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### Upper division electives

#### Select five courses

Three courses must be upper division ENVECON courses

Two courses may be selected from other departments; search online class schedule by major requirements for a list of approved courses from other departments.

ENVECON 131	Globalization and the Natural Environment [3]
ENVECON 140	Economics of Race, Agriculture, and the Environment [3]
ENVECON 141	Agricultural and Environmental Policy [4]
ENVECON 142	Industrial Organization with Applications to Agriculture and Natural Resources [4]
ENVECON 143	Economics of Innovation and Intellectual Property [4]
ENVECON 145	Health and Environmental Economic Policy [4]
ENVECON 147	The Economics of the Clean Energy Transition [4]
ENVECON C15	Development Economics [4]
ENVECON 152	Advanced Topics in Development and International Trade [3]
ENVECON 153	Population, Environment, and Development [3]
ENVECON 154	Economics of Poverty and Technology [3]
ENVECON 161	Advanced Topics in Environmental and Resource Economics [4]
ENVECON 162	Economics of Water Resources [3]
ENVECON C17	Climate Change Economics [4]
ENVECON C18	International Trade [4]
ENVECON C19	Forest Ecosystem Management [4]

Students who have a strong interest in an area of study outside their major often decide to complete a minor program. These programs have set requirements.

## General Guidelines

1. All minors must be declared no later than one semester before a student's Expected Graduation Term (EGT). If the semester before EGT is fall or spring, the deadline is the last day of RRR week. If the semester before EGT is summer, the deadline is the final Friday of Summer Sessions. To declare a minor, contact the department advisor for information on requirements, and the declaration process.
2. All courses taken to fulfill the minor requirements below must be taken for graded credit.
3. A minimum grade point average (GPA) of 2.0 is required for courses used to fulfill the minor requirements.
4. No more than one upper division course may be used to simultaneously fulfill requirements for a student's major and minor programs.

At least one of the five upper division courses below must be taken during the academic year (i.e., not all courses may be Summer Session courses).

## Lower Division Prerequisite

Select one of the following sequences:

MATH 16A & MATH 16B	Analytic Geometry and Calculus and Analytic Geometry and Calculus
MATH 1A & MATH 1B	Course Not Available and Course Not Available

## Minor Requirements

**Principles of microeconomics, select one of the following:**

ENVECON C1/ECON C3	Introduction to Environmental Economics and Policy [4]
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ECON 1	Introduction to Economics [4]
ECON 2	Introduction to Economics--Lecture Format [4]

**Intermediate microeconomics, select one of the following:**

ENVECON 100	Intermediate Microeconomics with Applications to Sustainability [4]
ECON 100A	Microeconomics [4]
ECON 101A	Microeconomics (Quantitative) [4]

**Environmental and natural resource economics**

ENVECON C101/	Environmental Economics	4
ECON C125		
ENVECON/	Natural Resource Economics	4
ECON C102		

**Quantitative methods, select one of the following:**

ENVECON/	Introductory Applied Econometrics [4]
IAS C118	
ENVECON/	Forest Ecosystem Management [4]
ESPM C183	
ECON C110/	Game Theory in the Social Sciences [4]
POL SCI C135	
ECON 140	Econometrics [4]
ECON 141	Econometrics (Quantitative) [4]
ECON C142/	Applied Econometrics and Public Policy [4]
POL SCI C131/	
PUB POL C142	
ESPM 102B	Natural Resource Sampling [2]
ESPM 102C	Resource Management [4]
PB HLTH 142	Introduction to Probability and Statistics in Biology and Public Health [4]
STAT 131A	Course Not Available [4]

**Natural resource analysis and policy, select one of the following (Economics majors choose two):**

ENVECON 131	Globalization and the Natural Environment [3]
ENVECON 140	Economics of Race, Agriculture, and the Environment [3]
ENVECON 142	Industrial Organization with Applications to Agriculture and Natural Resources [4]
ENVECON 143	Economics of Innovation and Intellectual Property [4]
ENVECON 145	Health and Environmental Economic Policy [4]
ENVECON 147	The Economics of the Clean Energy Transition [4]
ENVECON C15	Development Economics [4]
ENVECON 152	Advanced Topics in Development and International Trade [3]
ENVECON 153	Population, Environment, and Development [3]
ENVECON 154	Economics of Poverty and Technology [3]
ENVECON 161	Advanced Topics in Environmental and Resource Economics [4]
ENVECON 162	Economics of Water Resources [3]
ENVECON C17	The Economics of Climate Change [4]
ENVECON C18	International Trade [4]

Reading and Composition (<https://guide.berkeley.edu/undergraduate/colleges-schools/natural-resources/reading-composition-requirement/>)

In order to provide a solid foundation in reading, writing and critical thinking all majors in the College require two semesters of lower division

work in composition. Students must complete a first-level reading and composition course by the end of their second semester and a second-level course by the end of their fourth semester.

Foreign Language (<https://guide.berkeley.edu/undergraduate/colleges-schools/natural-resources/foreign-language-requirement/>): **EEP Majors only**

The Foreign Language requirement is only required by Environmental Economics and Policy (EEP) majors. It may be satisfied by demonstrating proficiency in reading comprehension, writing, and conversation in a foreign language equivalent to the second semester college level, either by passing an exam or by completing approved course work.

Quantitative Reasoning (<https://guide.berkeley.edu/undergraduate/colleges-schools/natural-resources/quantitative-reasoning-requirement/>): **EEP Majors only**

The Quantitative Reasoning requirement is only required by Environmental Economics and Policy (EEP) majors. The requirement may be satisfied by exam or by taking an approved course.

## Undergraduate Breadth

Undergraduate breadth provide Berkeley students with a rich and varied educational experience outside of their major program and many students complete their breadth courses in their first two years. Breadth courses are built into the Rausser College major requirements and each major requires a different number of breadth courses and categories. The EEP major is the only college major that requires the entire 7 course breadth. Refer to the major snapshots on each Rausser College major page (<https://nature.berkeley.edu/advising/majors-minors/>) for additional information.

## High School Exam Credit

Rausser College students may apply high school exam credit (Advanced Placement, International Baccalaureate, A-Level Exam) towards many College and Major Requirements. See AP Exam Equivalency Chart and Higher Level IB Exam Equivalency Chart (<https://nature.berkeley.edu/advising/courses-grades/#AP%20Exam%20Equivalency%20Chat>) in the Rausser College Student Handbook (<https://nature.berkeley.edu/handbook/>) for more information.

## Unit Requirements

Students must complete at least 120 semester units of courses subject to certain guidelines:

- At least 36 units must be upper division courses, including a minimum of 15 units of upper division courses in the Rausser College.
- A maximum of 16 units of Special Studies coursework (courses numbered 97, 98, 99, 197, 198, or 199) is allowed towards the 120 units; a maximum of four is allowed in a given semester.
- A maximum of 4 units of Physical Education from any school attended will count towards the 120 units.
- Students may receive unit credit for courses graded P (including P/NP units taken through EAP) up to a limit of one-third of the total units taken and passed on the Berkeley campus at the time of graduation. Courses taken for P/NP in the Spring 2020 semester will not count toward this limit.

## Semester Unit Minimum

All Rausser College students must enroll in at least 12 units each fall and spring semester.

## Semester Unit Maximum

To request permission to take more than 20.5 units in a semester, please see the major adviser.

## Semester Limit

Students admitted as freshmen must graduate within 8 fall/spring semesters at UC Berkeley. Students admitted as transfer students must graduate within 4 fall/spring semesters at UC Berkeley. Students who go on EAP and UCDC can petition for additional semesters. Other UC-affiliated programs, such as the Gump Station in Moorea, may also be considered. Summer session, UC Extension and non-UC study abroad programs do not count towards this semester limit. Students approved for double majors or simultaneous degrees in two colleges may be granted an additional semester. Rausser College does not limit the number of total units a student can accrue.

## Senior Residence Requirement

Once you achieve and exceed 90 units (senior status), you must complete at least 24 of the remaining 30 units in residence at the Rausser College of Natural Resources over at least 2 semesters. To count as residence, a semester must consist of at least 6 passed units taken while the student is a member of Rausser. At least one of the two terms must be a fall or spring semester. Senior residence terms do not need to be completed consecutively. All courses offered on campus for the fall, spring, and summer terms by Berkeley departments and programs and all Berkeley online ("W") courses count. Inter-campus Visitor, Education Abroad Program, UC Berkeley Washington Program, and UC Berkeley Extension units do not count toward this requirement.

Students may use Summer Session to satisfy one semester of the Senior Residence Requirement, provided that 6 units of coursework are completed.

## Modified Senior Residence Requirement

Participants in a fall, spring or summer UC Education Abroad Program (UCEAP), Berkeley Summer Abroad, or the UC Berkeley Washington Program may meet a modified Senior Residence Requirement by completing 24 of their final 60 semester units in residence (excluding UCEAP). At least 12 of these 24 units must be completed after senior status is reached. International travel study programs sponsored by Summer Sessions and education abroad programs offered outside of the UC system do not qualify for modified senior residence.

Most students automatically satisfy the residence requirement by attending classes here for four years. In general, there is no need to be concerned about this requirement, unless students go abroad for a semester or year or want to take courses at another institution or through University Extension during their senior year. In these cases, students should make an appointment to see an adviser to determine how they can meet the Senior Residence Requirement.

## Grade Requirements

- A 2.0 UC GPA is required for graduation.
- A 2.0 average in all upper division courses required of the major program is required for graduation.
- A grade of at least C- is required in all courses for the major. Major and minor coursework taken in Spring 2020, Fall 2020, and Spring

2021 may be completed with P/NP grading option. See more details below.

## Changes in Policies and Procedures during the COVID-19 Pandemic

### Fall 2020, Spring 2021, SUMMER 2021

After much consultation across the colleges of UC Berkeley, and via our college Executive Committee, the following decisions have been made about the selection of the P/NP grade option (CPN) by undergraduate students during the Fall 2020 & Spring 2021 semesters for the Rausser College of Natural Resources.

- College Course Requirements: Reading and Composition, Quantitative Reasoning, and Foreign Language requirements normally satisfied with letter grades may be met with a passed (P) grade during the Fall 2020 semester. This does not include the system-wide Entry Level Writing requirement. College Writing R1A must be taken for a letter grade and completed with a C or better to fulfill the Entry Level Writing requirement.
- Requirements to Graduate: No changes in policy.
  - Rausser College students must have at least a 2.0 cumulative UC GPA to declare a Rausser College major.
  - Non-Rausser College students must have at least a 3.0 cumulative UC GPA to change to or add a Rausser College major.
  - Students must have at least a 2.0 cumulative UC GPA to graduate, both overall and in the upper-division courses required for the major.
- Academic Probation: The terms for Academic Probation (AP) have been modified.
  - Rausser CNR students currently in good standing who earn all "P" grades will remain in good standing.
  - Students currently in good standing who earn NP grades, Incompletes, or failing letter grades for more than 50% of units will be placed on academic probation and will be required to meet with their college advisor and complete an Academic Success Plan for the subsequent semester.
  - Students on AP must take all coursework for letter grades. Students on AP may be removed from probationary status with sufficient letter graded course work to raise their cumulative GPA above 2.0.
  - Students on Academic Probation who do not attain sufficient letter-graded coursework to be removed from AP (ie. enough grade points to raise cumulative GPA above 2.0 cumulative GPA) will remain on AP for the subsequent semester and must complete an Academic Success Plan with their college advisor.
  - Students on Academic Probation who earn NP grades, Incompletes, or failing letter grades for more than 50% of units will be Subject to Dismissal and will be required to meet with their college advisor and complete an Academic Success Plan for the subsequent semester.
- Term Probation: Students in this category are placed on academic probation if their GPA falls below 1.5 in any fall or spring semester

("Term"). To get back into good standing, you must earn a UC Berkeley term GPA of 2.0 the following regular semester (fall/spring) and maintain an overall GPA of 2.0. If you fail to meet these conditions, you will be subject to dismissal from the University. For Fall 2020 & Spring 2021, the terms for Term Probation have been modified.

- Rausser CNR students currently in good standing who earn all "P" grades will remain in good standing and will not be placed on Term Probation.
- Transferring Credit: If you are taking coursework through another institution in Fall 2020 & Spring 2021, P grades earned will be accepted for all degree requirements. Note: This does not include the systemwide Entry Level Writing requirement. College Writing R1A must be taken for a letter grade and completed with a C or better to fulfill the Entry Level Writing requirement.

For additional information, please see Changes to Policies and Procedures for Fall 2020, Spring 2021, & Summer 2021 (<https://nature.berkeley.edu/advising/AY-2020-2021-policy-adjustments/>).

### Spring 2020

In light of the substantial disruptions to instruction caused by the novel coronavirus emergency, the Berkeley Division of the Academic Senate made changes to grading options for the Spring 2020 semester. Rausser College adjusted college requirements as follows:

- College Course Requirements: All passing course work taken in Spring 2020 may be used for college requirements regardless of the grading option selected.
- Requirements to Graduate: To graduate, Rausser College students usually must have at least a 2.0 cumulative UC GPA to graduate, both overall and in the upper-division courses required for their major. For Spring 2020, students with at least a 1.9 cumulative GPA overall and in the upper-division courses required for their major to graduate will be considered as having met the requirement.
- Academic Probation: Recognizing the challenges to teaching and learning during the COVID-19 pandemic, Rausser College of Natural Resources will not be penalizing any students' academic progress for Spring 2020.
  - Students in good academic standing who earn all "P" grades will remain in good standing.
  - Students, who are in good standing, who earn NP grades, Incompletes, or failing grades for more than 50% of units will be required to meet with their college advisor and complete an Academic Success Plan for Fall 2020 by September 11, 2020, but will not be placed on Academic Probation.
  - Students on Academic Probation may be removed from probationary status with sufficient letter graded course work to raise their cumulative GPA above 2.0.
  - Students on Academic Probation who do not attain sufficient letter-graded coursework to be removed from AP (ie. enough grade points to raise cumulative GPA above 2.0 cumulative GPA) will remain on AP for Fall 2020 and must complete an Academic Success Plan with their college advisor by September 11, 2020.



- Term Probation: Recognizing the challenges to teaching and learning during the COVID-19 pandemic, Rausser College of Natural Resources will not be penalizing any students' academic progress for Spring 2020.

- Students in good academic standing who earn all "P" grades will remain in good standing.
- Students on Term Probation, but not AP, may be removed from probationary status with passing grades in at least 50% of units for Spring 2020.
- Students on Term Probation at the start of Spring 2020 who earn NP, Incomplete, or failing grades for more than 50% of units must complete an Academic Success Plan with their college advisor by September 11, 2020 and will remain on Term Probation.
- Transferring Credit: If you are taking coursework through another institution in Spring 2020 (i.e. through Concurrent Enrollment or instead of being enrolled in Spring 2020 at UC Berkeley) and that institution has moved to a P/NP-default or P/NP-only grading model, P grades earned will be accepted for all degree requirements.

For additional information, please see Changes to Policies and Procedures for Spring 2020 (<https://nature.berkeley.edu/advising/spring-2020-changing-policies-faq/>).

Students are encouraged to familiarize themselves with the Environmental Economics and Policy major requirements before making a program plan. For more detailed information regarding the courses listed below (e.g., elective information, GPA requirements, etc.), see the College Requirements and Major Requirements tabs.

Freshman		
	Fall Units	Spring Units
MATH 16A	3 MATH 16B	3
OR	OR	
MATH 1A [4]	MATH 1B [4]	
Reading and Composition A	4 Reading and Composition B	4
L&S Breadth	4 Lower Division Elective	4
L&S Breadth	4 ENVECON C1	4
	OR	
	ECON 1 [4]	
	15	15

Sophomore		
	Fall Units	Spring Units
STAT 20	4 ENVECON 100 (Core 1 of 2)	4 Internship
OR	L&S Breadth	4 OR
STAT 21 [4]	L&S Breadth	3 Study Abroad
L&S Breadth	4 American Cultures Requirement	4
L&S Breadth	4	
Lower Division Elective	3	
	15	15

Junior		
	Fall Units	Spring Units
Environmental Economics and Policy Quantitative Methods	4 ENVECON C101 (Core 2 of 2)	4 Internship
Upper Division	4 Upper Division	4 OR
Environmental Economics and Policy Elective (1 of 5)	Environmental Economics and Policy Elective (2 of 5)	

Lower or Upper Division Elective	4 Lower or Upper Division Elective	4 Study Abroad
Lower or Upper Division Elective	3 Lower or Upper Division Elective	3
	15	15
		0
		Senior
	Fall Units	Spring Units
Upper Division	4 Upper Division	4
Environmental Economics and Policy Elective (3 of 5)	Environmental Economics and Policy Elective (5 of 5)	
Upper Division	4 Lower or Upper Division Elective	4
Environmental Economics and Policy Elective (4 of 5)		
Lower or Upper Division Elective	4 Lower or Upper Division Elective	4
Lower or Upper Division Elective	3 Lower or Upper Division Elective	3
	15	15

Total Units: 120

- <sup>1</sup> This is a sample program plan. This plan assumes that the student has completed the Entry Level Writing and American History and Institutions requirements prior to admission.
- <sup>2</sup> Students are strongly advised to work with an academic advisor to determine a personal program plan. Your program plan will differ depending on previous credit received, your course schedule, and available offerings.
- <sup>3</sup> Any EEP course will satisfy the L&S Breadth area of Social and Behavior Sciences, one of seven breadth areas.

## Accelerated Program Plans

For students considering graduating in less than four years, it's important to acknowledge the reasons to undertake such a plan of study. While there are advantages to pursuing a three-year degree plan such as reducing financial burdens, they are not for everyone and do involve sacrifices; especially with respect to participating in co-curricular activities, depth of study, and summer internships, which typically lead to jobs upon graduation. All things considered, please see the tables for three and three and a half year degree options.

3.5 Year Plan ([https://nature.berkeley.edu/sites/default/files/EEP%203.5%20yr%20plan\\_0.pdf](https://nature.berkeley.edu/sites/default/files/EEP%203.5%20yr%20plan_0.pdf))

3 Year Plan (<https://nature.berkeley.edu/sites/default/files/EEP%203%20yr%20plan.pdf>)

## Learning Goals for the Major

1. Produce graduates with an excellent education in applied economics, with a particular expertise in one of three fields: environmental economics and policy; development economics, or agricultural economics.
2. Prepare students for successful careers and further studies in graduate programs in a variety of applied fields within economics.
3. Produce graduates who have the capacity for continued learning throughout their careers and who will have a significant, positive impact on their professions.
4. Encourage the development of the ethics, skills, and motivation necessary to serve society.

Major maps are experience maps that help undergraduates plan their Berkeley journey based on intended major or field of interest. Featuring student opportunities and resources from your college and department

as well as across campus, each map includes curated suggestions for planning your studies, engaging outside the classroom, and pursuing your career goals in a timeline format.

Use the major map below to explore potential paths and design your own unique undergraduate experience:

**View the Environmental Economics and Policy Major Map. (<https://discovery.berkeley.edu/getting-started/major-maps/environmental-economics-policy/>)**

## Environmental Economics and Policy

### ENVECON C1 Introduction to Environmental Economics and Policy 4 Units

Terms offered: Fall 2025, Fall 2024, Summer 2024 8 Week Session, Fall 2023

Introduction to microeconomics with emphasis on resource, agricultural, and environmental issues.

#### Rules & Requirements

**Prerequisites:** Mathematics 32

**Credit Restrictions:** Students will receive no credit for ECON C3 after completing ECON 1.

#### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 1 hour of discussion per week

**Summer:** 8 weeks - 6 hours of lecture and 2 hours of discussion per week

#### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Also listed as:** ECON C3

## ENVECON 7 Disaster Risk Resilience and Adaptation 3 Units

Terms offered: Spring 2025, Spring 2024, Spring 2023

A multidisciplinary approach to the many natural and human-made disasters facing California and the wider world in the 21

st century, with a focus

on understanding risk; risk reduction; risk governance (linking science and public policy); and

preparedness and resilient recovery. Emphasis on exposure of people, property and systems to natural

hazards, and adaptive capacity to risk vulnerability. Course is 10 weeks long for compatibility with the

quarter system of other UC campuses.

#### Hours & Format

**Fall and/or spring:** 10 weeks - 3 hours of lecture and 1 hour of discussion per week

**Summer:** 10 weeks - 3 hours of lecture and 1 hour of discussion per week

#### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Zilberman

## ENVECON 39D Freshman/Sophomore Seminar 1.5 - 4 Units

Terms offered: Fall 2009, Fall 2008

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

#### Rules & Requirements

**Prerequisites:** Priority given to freshmen and sophomores

**Repeat rules:** Course may be repeated for credit without restriction.

#### Hours & Format

**Fall and/or spring:** 15 weeks - 1.5-4 hours of seminar per week

#### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** The grading option will be decided by the instructor when the class is offered. Final exam required.

## ENVECON 98 Directed Group Studies (for Lower Division Students) 1 - 3 Units

Terms offered: Spring 2001

Group study (or seminar) of a selected topic or topics in Environmental Economics and Policy.

### Rules & Requirements

**Prerequisites:** Consent of Instructor

**Credit Restrictions:** Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog.

**Repeat rules:** Course may be repeated for credit without restriction.

### Hours & Format

**Fall and/or spring:** 15 weeks - 1-3 hours of directed group study per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Offered for pass/not pass grade only. Final exam not required.

## ENVECON 100 Intermediate Microeconomics with Applications to Sustainability 4 Units

Terms offered: Fall 2025, Summer 2025 8 Week Session, Spring 2025

Covers the basic microeconomic tools for further study of natural resource problems. Theory of consumption, production, theory of the firm, industrial organization, general equilibrium, public goods and externalities. Applications to agriculture and natural resources.

### Rules & Requirements

**Prerequisites:** C1 or Economics 1 or C3; and Mathematics 16A and 16B or Math 1A and 1B; or consent of instructor

**Credit Restrictions:** Students will receive no credit for ENVECON 100 after completing ECON 100A.

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 1 hour of discussion per week

### Summer:

6 weeks - 8 hours of lecture and 4 hours of discussion per week  
8 weeks - 6 hours of lecture and 2 hours of discussion per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructors:** Perloff, Wagner

## ENVECON C101 Environmental Economics 4 Units

Terms offered: Fall 2025, Fall 2024, Spring 2024

Theories of externalities and public goods applied to pollution and environmental policy. Trade-off between production and environmental amenities. Assessing nonmarket value of environmental amenities. Remediation and clean-up policies. Environment and development. Biodiversity management.

### Rules & Requirements

**Prerequisites:** 100, Mathematics 16A-16B, or Economics 100A or 101A

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 1 hour of discussion per week

**Summer:** 8 weeks - 6 hours of lecture and 2 hours of discussion per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Zilberman

**Also listed as:** ECON C125

## ENVECON C102 Natural Resource Economics 4 Units

Terms offered: Spring 2025, Fall 2023, Spring 2023

Introduction to the economics of natural resources. Land and the concept of economic rent. Models of optimal depletion of nonrenewable resources and optimal use of renewable resources. Application to energy, forests, fisheries, water, and climate change. Resources, growth, and sustainability.

### Rules & Requirements

**Prerequisites:** 100, or Economics 100A or 100B

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 1 hour of discussion per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Sunding

## ENVECON 103 Intermediate Microeconomic Theory with Application to Natural Resources 4 Units

Terms offered: Prior to 2007

Covers intermediate microeconomic theory for further study of economic behavior as it relates to agriculture and natural resource problems.

Theory of consumption, production, theory of the firm, industrial organization, general equilibrium, public goods and externalities.

Applications to agriculture and natural resources.

### Rules & Requirements

**Prerequisites:** C1 or Economics 1 or C3 and Mathematics 16A or consent of instructor

**Credit Restrictions:** Students will receive no credit for Environmental Economics 103 after completing Environmental Economics 100, Economics 100A, Economics 101A, or Undergraduate Business Administration 110.

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 1 hour of discussion per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Ligon

## ENVECON 104 The Economics of Sustainable Business and Policy 3 Units

Terms offered: Summer 2025 Second 6 Week Session, Summer 2024 Second 6 Week Session, Summer 2023 Second 6 Week Session

This course examines how private businesses operate in the context created by environmental regulation. It provides an overview of grand environmental challenges, including climate, air pollution, and water quality and scarcity. For each problem, the potential for value creation by private businesses that can help society solve these problems is explained, so that environmental problems can be understood as market opportunities. It provides a series of case studies that examine how the strategic decisions of businesses are shaped by environmental policy, and how businesses act to shape policy to their benefit.

### Rules & Requirements

**Prerequisites:** ENVECON 100, ECON 101 A & B, or the equivalent

### Hours & Format

**Summer:** 6 weeks - 6 hours of lecture and 1.5 hours of discussion per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

## ENVECON 105 Data Tools for Sustainability and the Environment 3 Units

Terms offered: Summer 2025 Second 6 Week Session, Summer 2024 Second 6 Week Session, Summer 2023 Second 6 Week Session

This course introduces students to data analysis for use in addressing sustainable business and policy questions. By the end of this course, students will be able to analyze real-world data within the Jupyter/Python programming environment. It will focus on real-world applications such as the White House's environmental justice proposals; emissions monitoring; and assessing plastic waste for the Government of Indonesia.

### Hours & Format

**Summer:** 6 weeks - 6 hours of lecture and 1.5 hours of discussion per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

## ENVECON C115 Modeling and Management of Biological Resources 4 Units

Terms offered: Fall 2018, Fall 2017, Fall 2015, Fall 2014

Models of population growth, chaos, life tables, and Leslie matrix theory. Harvesting and exploitation theory. Methods for analyzing population interactions, predation, competition. Fisheries, forest stands, and insect pest management. Genetic aspects of population management. Mathematical theory based on simple difference and ordinary differential equations. Use of simulation packages on microcomputers (previous experience with computers not required).

### Rules & Requirements

**Prerequisites:** A course that includes differential and integral calculus

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 2 hours of laboratory per week

**Summer:** 6 weeks - 6.5 hours of lecture and 4 hours of laboratory per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Getz

**Also listed as:** ESPM C104



## ENVECON C118 Introductory Applied Econometrics 4 Units

Terms offered: Fall 2025, Spring 2025, Fall 2024

Formulation of a research hypothesis and definition of an empirical strategy. Regression analysis with cross-sectional and time-series data; econometric methods for the analysis of qualitative information; hypothesis testing. The techniques of statistical and econometric analysis are developed through applications to a set of case studies and real data in the fields of environmental, resource, and international development economics. Students learn the use of a statistical software for economic data analysis.

### Rules & Requirements

**Prerequisites:** Statistics 2, 20, 21, or equivalent

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 1 hour of discussion per week

**Summer:** 8 weeks - 6 hours of lecture and 2 hours of discussion per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Also listed as:** IAS C118

## ENVECON 131 Globalization and the Natural Environment 3 Units

Terms offered: Fall 2013, Fall 2012, Fall 2011

An examination of the environmental effects of globalization. How has increased international trade, the integration of factor markets, and the adoption of international agreements affected the environment? Case studies include the environmental impact of GATT/WTO and NAFTA. Multi-disciplinary approach examines the actual laws and institutions and the economic theories of globalization, in addition to the empirical evidence of globalization's environmental effects.

### Rules & Requirements

**Prerequisites:** Intermediate micro-economic theory or consent of instructor

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Karp

## ENVECON C132 International Environmental Economics 4 Units

Terms offered: Spring 2025, Fall 2023, Fall 2022

This course studies the following question: How should policymakers and scholars design and analyze environmental policy in a globalized world where much economic activity and pollution crosses political borders? The course addresses issues including climate change, air and water pollution, deforestation, species extinction, and others. The course also analyzes a variety of ways that countries and regions interact, including trade, foreign direct investment, outsourcing, international agreements and treaties, and others. The course also teaches a range of tools used to analyze these issues, including life-cycle (also called environmental footprint) analysis, simple econometrics, environmental market design, non-market valuation, and the data.

### Objectives & Outcomes

**Course Objectives:** 1. Develop a strong grasp of the main debates and ideas involving international environmental economics

2. Learn to interpret, apply, and critically assess methods used to study international environmental economic issues

3. Build skills in reading basic economic writing involving these issues, including an understanding of their evidence and conclusions, and ability to critically evaluate the basis for these conclusion

### Student Learning Outcomes: 1.

A strong grasp of the main scholarly debates and ideas involving international environmental economics

2.

The ability to interpret and critically assess methods used to study international environmental economic issues, including:

life-cycle analysis and input-output tables;

simple econometric estimates;

the design of environmental policy;

non-market valuation;

and the use of remote sensing (satellite) data

The ability to read basic empirical environmental economics papers, understand their evidence and conclusions, and critically evaluate the basis for these conclusions

### Rules & Requirements

**Prerequisites:** ENVECON 100, ECON 101a, ECON 100a or or equivalent

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 1 hour of discussion per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Shapiro

**Also listed as:** ECON C184

## ENVECON 140AC Economics of Race, Agriculture, and the Environment 3 Units

Terms offered: Fall 2012, Fall 2011, Fall 2010

This course examines whether and how economic processes explain shifting formations of race and differential experiences among racial groups in U.S. agricultural and environmental systems. It approaches economic processes as organizing dynamics of racial differentiation and integration, and uses comparative experience among different racial and ethnic groups as sources of evidence against which economic theories of differentiation and integration can be tested.

### Rules & Requirements

**Prerequisites:** 1, or one lower division course in a social science, or consent of instructor

**Requirements this course satisfies:** Satisfies the American Cultures requirement

### Hours & Format

**Fall and/or spring:** 15 weeks - 2 hours of lecture and 1 hour of discussion per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Romm

## ENVECON 141 Agricultural and Environmental Policy 4 Units

Terms offered: Spring 2025, Spring 2024, Spring 2023

This course considers the formation, implementation, and impact of public policies affecting agriculture and the environment. Economic approaches to public lawmaking, including theories of legislation, interest group activity, and congressional control of bureaucracies. Case studies include water allocation, endangered species protection, water quality, food safety, drainage, wetlands, pesticides, and farmworker safety. Emphasis on examples from California.

### Rules & Requirements

**Prerequisites:** 100 or Economics 100A or 101A

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 1 hour of discussion per week

**Summer:** 8 weeks - 6 hours of lecture and 2 hours of discussion per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

## ENVECON 142 Industrial Organization with Applications to Agriculture and Natural Resources 4 Units

Terms offered: Spring 2015, Spring 2014, Spring 2013

Organization and performance of agricultural and resource markets.

Conduct of firms within those markets, such as price competition, product differentiation, predatory pricing, vertical integration, dealer networks and advertising. The role of public policy in the markets. Case studies include oil cartel OPEC, agricultural cooperatives, vertical integration of food processors and franchising of fast-food chains. Discussion sections cover empirical applications of theory presented during lectures for current environmental and agricultural policies.

### Rules & Requirements

**Prerequisites:** Environmental Economics and Policy 100 or Economics 100A or 101A

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 1 hour of discussion per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Villas-Boas

## ENVECON 143 Economics of Innovation and Intellectual Property 4 Units

Terms offered: Spring 2023, Spring 2022, Fall 2021

This course addresses the economics of research and incentives for innovation including intellectual property rights. Topics include the standard modern economics of invention; modern intellectual property rights; innovation examples from agriculture, energy, pharmaceuticals, software, and electronics; the roles of the public and private sectors; innovation and market structure; the needs of the poor; and global intellectual property negotiations.

### Rules & Requirements

**Prerequisites:** ENVECON 100 or ECON 100A or ECON 101A with minimum grade of C+

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 1 hour of discussion per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Wright

## ENVECON 145 Health and Environmental Economic Policy 4 Units

Terms offered: Spring 2025, Fall 2021, Fall 2019

This course introduces students to key issues and findings in the field of health and environmental economics. The first half of the course focuses on the theoretical and statistical frameworks used to analyze instances of market failure in the provision of health and environmental goods. The second half focuses on policy-relevant empirical findings in the field.

### Rules & Requirements

**Prerequisites:** Intermediate microeconomics, 100, Economics 100 or 101A, and some statistics

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 1 hour of discussion per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Anderson

## ENVECON 147 The Economics of the Clean Energy Transition 4 Units

Terms offered: Spring 2025, Spring 2024, Spring 2023

The most promising path to deep decarbonization involves decarbonizing the electricity sector and then electrifying as much as we can – from transportation to buildings to industrial processes. Thus, the electricity sector has a pivotal role to play in our efforts to mitigate -- and adapt to-- climate change.

The clean energy transition will require not only technological innovation, but also energy market reforms, climate policy interventions, and regulatory innovation to ensure that the process is fair, equitable, and affordable. This course draws from the fields of environmental economics, energy economics, public economics, behavioral economics, and industrial organization to introduce the economic models and concepts that will help

### Rules & Requirements

**Prerequisites:** Intermediate microeconomic theory and calculus

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 1 hour of discussion per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Fowlie

## ENVECON 150 Energy and Environmental Economics Mentorship 3 Units

Terms offered: Fall 2025

The course is designed to help students envision and prepare for a graduate program in energy and environmental economics by providing training, mentoring, and hands-on research experience. Students are assigned a mentor. Each mentor will have 2 - 3 students as mentees.

Mentors are doctoral students who have an active research project within the energy and environmental economics field and have a desire to mentor undergraduate students interested in the field. The course includes weekly workshops for the class and weekly meetings for the mentors and mentees. The mentor meetings will be scheduled with the mentor. Mentees are also expected to spend at least 6 hours per week on assignments given by the mentors and instructors.

### Objectives & Outcomes

**Course Objectives:** With a focus on energy and environmental economics, the course helps undergraduate students understand the kinds of career paths that graduate school can lead to, and provides them the mentoring and resources to start pursuing these paths. The course will provide students with quantitative and qualitative research skills, experience on an active research project, and suggestions for UG course work to pursue and opportunities for post-graduation.

### Rules & Requirements

**Repeat rules:** Course may be repeated for credit up to a total of 4 times.

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of independent study per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Offered for pass/not pass grade only. Alternative to final exam.

## ENVECON C151 Development Economics 4 Units

Terms offered: Fall 2025, Fall 2024, Fall 2023

This course covers theory and empirical evidence on the determinants of economic development and the global fight against poverty. The course aims to introduce students to modern empirical research methods that are being used to inform policy making in developing countries. Students also learn how to implement these tools themselves using real-world data sets and widely used statistical software for impact evaluation.

### Rules & Requirements

**Prerequisites:** EnvEcon 100 or Econ 100A or 101A; Econ 140 or 141 or EnvEcon/IAS C118

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 1 hour of discussion per week

### Summer:

6 weeks - 8 hours of lecture and 2 hours of discussion per week

8 weeks - 6 hours of lecture and 2 hours of discussion per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Also listed as:** ECON C171

## ENVECON N151 Economic Development 4 Units

Terms offered: Prior to 2007

Problems of underdevelopment and poverty, policy issues, and development strategy.

### Rules & Requirements

**Prerequisites:** Envecon 100, Economics 100A or Economics 100B

**Credit Restrictions:** Students will receive no credit for ENVECON N151 after completing ECON N171, ENVECON C151, or ECON C171.

A deficient grade in ENVECON N151 may be removed by taking ECON N171, ENVECON C151, or ECON C171.

### Hours & Format

### Summer:

6 weeks - 8 hours of lecture and 2 hours of discussion per week

8 weeks - 6 hours of lecture and 2 hours of discussion per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

## ENVECON 152 Advanced Topics in Development and International Trade 3 Units

Terms offered: Spring 2020, Spring 2018, Fall 2016

This course discusses recent efforts to understand behavior and institutions in village economies, with particular attention paid to the importance of risk. Economic analysis of savings, consumption, insurance, production, trade, welfare distribution and institutions of villages in developing countries. Roughly equal parts of theory, evidence, and policy.

### Rules & Requirements

**Prerequisites:** 100 or Economics 100A

### Hours & Format

**Fall and/or spring:** 15 weeks - 2 hours of lecture and 1 hour of discussion per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Magruder

## ENVECON 153 Population, Environment, and Development 3 Units

Terms offered: Spring 2025, Spring 2024, Spring 2023

This course takes a quantitative, hands-on approach to understanding the challenges of feeding the human population of the planet Earth. We'll discuss topics of nutrition, subsistence food consumption, and consumer demand for food to develop our understanding of the current situation. We'll then develop both theories and computer models of population dynamics taking into account people's decisions about childbearing, changes in mortality, and changes in food supply in order to learn something about the future of food. Focus throughout the course will be on developing practical tools to work with real-world data.

### Rules & Requirements

**Prerequisites:** ENVECON 100 or ECON 100A or ECON 101A, and STAT C8 or INFO C8 or COMPSCI C8, and MATH 54 RECOMMENDED

### Hours & Format

**Fall and/or spring:** 15 weeks - 2 hours of lecture and 2 hours of laboratory per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

## ENVECON 154 Economics of Poverty and Technology 3 Units

Terms offered: Spring 2014, Spring 2013, Spring 2012

Introduction to the economic framework underlying the use of technology to address rural poverty in developing countries. Analyzes the path of technology development from innovation and design to the adoption and use of technology in rural economies. Focuses on technologies related to agricultural production, processing, market access, value chains, and climate change.

### Rules & Requirements

**Prerequisites:** Intermediate microeconomics

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/  
Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Boettiger

## ENVECON 161 Advanced Topics in Environmental and Resource Economics 4 Units

Terms offered: Spring 2025, Fall 2013, Fall 2012

The roots of environmental and resource economics. Theories of land and resource rent. Models of optimal use of renewable and nonrenewable resources with applications to energy and timber. Balancing environmental and extractive values. Resources, growth, and sustainability. Special topic: the problem of global climate change.

### Rules & Requirements

**Prerequisites:** 100 or Economics 100A or Economics 101A; 101 recommended

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 1 hour of discussion per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/  
Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

## ENVECON 162 Economics of Water Resources 3 Units

Terms offered: Spring 2023, Spring 2022, Spring 2021

Urban demand for water; water supply and economic growth; water utility economics; irrigation demand; large water projects; economic impacts of surface water law and institutions; economics of salinity and drainage; economics of groundwater management.

### Rules & Requirements

**Prerequisites:** 100 or Economics 100A or 101A; 101 recommended

### Hours & Format

**Fall and/or spring:** 15 weeks - 2 hours of lecture and 1 hour of discussion per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/  
Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

## ENVECON 170 Energy and Climate Policy in China 1 Unit

Terms offered: Spring 2025, Spring 2024, Spring 2023

The course will present scholarly review of historical and on-going energy and climate policy topics in China, with a broad goal of gaining understanding the relationship between energy, economic development, and climate change in the largest emerging economy, China.

### Objectives & Outcomes

**Course Objectives:** One goal of the course is to give students the tools to read, write about, speak about, and in general critically evaluate empirical research on energy and climate policy in China and in developing economies in general. The lectures and interactions with guest speakers would give student the perspective on the effectiveness of various energy and climate policies in the developing world context, an understanding of the key factors in successful climate policies, so they could apply these lessons learned to develop appropriate energy and climate policies in other developing economies.

### Hours & Format

**Fall and/or spring:** 15 weeks - 1 hour of seminar per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/  
Undergraduate

**Grading/Final exam status:** Letter grade. Alternative to final exam.

**Instructor:** Lin



## ENVECON C175 The Economics of Climate Change 4 Units

Terms offered: Spring 2016, Fall 2015, Fall 2014, Fall 2013

The course will start with a brief introduction and evaluation of the scientific aspects behind climate change. Economic models will be developed to analyze the impacts of climate change and provide and critique existing and proposed policy tools. Specific topics studied are impacts on water resources and agriculture, economic evaluation of impacts, optimal control of greenhouse gases, benefit cost analysis, international treaty formation, discounting, uncertainty, irreversibility, and extreme events.

### Rules & Requirements

**Prerequisites:** 106, 107, Economics 1, or equivalent

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 1 hour of discussion per week

**Summer:** 6 weeks - 7.5 hours of lecture and 2.5 hours of discussion per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructors:** Aufhammer, Fisher

**Also listed as:** IAS C175

## ENVECON C176 Climate Change Economics 4 Units

Terms offered: Fall 2025, Summer 2025 Second 6 Week Session, Fall 2024

This course is a self-contained introduction to the economics of climate change. Climate change is caused by a large variety of economic activities, and many of its impacts will have economic consequences. Economists have studied climate change for more than two decades, and economic arguments are often powerful in policy decisions. The course will familiarize students with these arguments and equip them with the tools to participate in discussions of climate change policy through an economic lens.

### Objectives & Outcomes

**Course Objectives:** The course will start with a brief review of the science of climate change, discuss scenarios of economic growth and the greenhouse gas emissions caused by economic activities and investigate various emission reduction opportunities and their economic costs. A significant amount of time will be spent on studying the impacts of climate change, their economic evaluation and how adaptation can lower the costs of climate damages.

We will then study various theoretical frameworks economists have developed that answer the question how estimates about the costs and benefits of climate policy can be combined to find “good” climate policies. We then study three more specialized topics that turn out to be of great importance when analyzing climate change policy: first, how do we compare costs and benefits of generations that live many centuries apart? Second, how do we design climate policy when our projections of both the costs and the benefits of climate policy are highly uncertain? And third, how can equity considerations be accounted for in an economic assessment of climate change policy? The course will close with a look at international cooperation on climate policy and why it has been so difficult to agree on effective treaties that implement climate change policy.

**Student Learning Outcomes:** Students will also have gained insight into the practical aspects of modeling the economics of climate change by building a simple integrated assessment model in Excel. They will be able to use that model to do simple analysis of climate change policy themselves.

Students will be familiar with the tools economists use to analyze climate change policy. They will have studied empirical estimates of the costs and benefits of climate policy and have an understanding of the analytical issues that drive research on the economics of climate change.

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 2 hours of laboratory per week

### Summer:

6 weeks - 9 hours of lecture and 6 hours of laboratory per week  
8 weeks - 6 hours of lecture and 4 hours of laboratory per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Anthoff

**Also listed as:** ENE,RES C176/IAS C176

## ENVECON C181 International Trade 4 Units

Terms offered: Fall 2025, Fall 2024, Spring 2024

The theory of international trade and its applications to tariff protection.

This course is equivalent to UGBA 118; students will not receive credit for both courses.

### Rules & Requirements

**Prerequisites:** Economics100A-100B or Economics 101A-101B

**Credit Restrictions:** Students will receive no credit for ECON C181/ ENVECON C181 after passing ECON 181, ECON N181 or UGBA 118. A deficient grade in ECON 181, or ECON N181 may be removed by taking ECON C181/ENVECON C181.

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 1 hour of discussion per week

**Summer:** 8 weeks - 6 hours of lecture and 2 hours of discussion per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

## ENVECON C183 Forest Ecosystem Management 4 Units

Terms offered: Spring 2016, Spring 2015, Spring 2014

Introduces students to concepts and quantitative tools needed for the sustainable management of multi-use forest ecosystems. Topics covered include: estimation of ecological, economic, and social values; construction of dynamic forest models, methods for optimal decision-making, and development of forest management plans. Application to current issues in temperate and tropical forest management are discussed. Quantitative, analytical, and communication skills are emphasized. Oral presentation required.

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 3 hours of laboratory per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Potts

**Also listed as:** ESPM C183

## ENVECON 185 The Production and Business of Beer, Wine, and Spirits 2 Units

Terms offered: Fall 2025, Spring 2025, Fall 2022

Raw materials, process flow, production methodology and quality control will be introduced in the first half of the class for the first half of the semester. Students will also be introduced to basic chemistry and microbiology of fermentation and distilling. The second half of the semester will be an introduction to finance, cost accounting, sales and marketing for the alcoholic beverage industry. The goal will be to enable the students to write a business plan by the end of the semester.

### Objectives & Outcomes

**Course Objectives:** 1. Cite detail of raw materials and production processes for beer, wine and spirits.

2. Describe and differentiate the majority of beer styles, wine varietals and various distilled spirits.

3. Write a realistic business plan for a beverage production company.

### Hours & Format

**Fall and/or spring:** 15 weeks - 2 hours of lecture per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Alternative to final exam.

**Instructor:** Perloff

## ENVECON C188 Advanced Topics in International Economics 3 Units

Terms offered: Fall 2024

Globalization and its consequences have interested economists and the public since Adam Smith and David Ricardo. However, the nature of the global economy has changed dramatically over time. Paraphrasing Ricardo's famous example, "it's not wine for cloth anymore." This course will introduce a modern view on international trade focusing on firms as vehicles of trade. We will study key theoretical models of New Trade Theory and apply them to understand the consequences of a range of trade policies from the recent past, such the NAFTA agreement and China's entry to the WTO. We will combine theoretical models, empirical econometric tools, and data to understand the impacts of trade and offshoring on trade flows, aggregate welfare, and inequality

### Rules & Requirements

**Prerequisites:** • Microeconomics (Envecon100, Econ100 or Econ101A): required • Econometrics (EnveconC118, Econ140 or Econ141): required but can be taken concurrently • International Trade (Envecon/EconC181): optional. This course is complementary to C181; a few extra readings will be provided to students who have not taken that class; • Students should have a basic knowledge of calculus (roughly at the level of Mathematics 16A and 16B) and be comfortable understanding mathematical arguments

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 1 hour of discussion per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Borusyak

## ENVECON 195 Senior Thesis 4 Units

Terms offered: Summer 2019, Fall 2017, Fall 2016

Writing of a thesis under the direction of member(s) of the faculty. Subject must be approved by faculty sponsor.

### Rules & Requirements

**Prerequisites:** Senior standing in Environmental Economics and Policy and consent of instructor

**Repeat rules:** Course may be repeated for credit without restriction.

### Hours & Format

**Fall and/or spring:** 15 weeks - 0 hours of independent study per week

### Summer:

6 weeks - 0 hours of independent study per week  
8 weeks - 0 hours of independent study per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam not required.

## ENVECON 196 Senior Research Seminar 4 Units

Terms offered: Spring 2011

This course is intended as a capstone experience for undergraduates in the major coordinated by one faculty member with participation by others. Following presentations by faculty on researchable topics in their areas of expertise, students will develop ideas for a research paper and discuss in subsequent seminar sessions. Approximately the last five weeks of the semester will be devoted to student presentations of papers either already completed or in progress, and discussion by seminar participants and faculty.

### Rules & Requirements

**Prerequisites:** Student must be a senior with at least a 3.6 GPA in the Environmental Economics and Policy major

### Hours & Format

**Fall and/or spring:** 15 weeks - 2 hours of seminar per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam not required.

**Instructor:** Fisher

## ENVECON H196 Honors Research 4 Units

Terms offered: Fall 2016, Spring 2016, Fall 2015

Supervised independent honors research specific to aspects of environmental economics and policy, followed by a oral presentation and a written report.

### Rules & Requirements

**Prerequisites:** Upper division standing. Eligibility restrictions related to GPA and unit accumulation. Open only to Environmental Economics and Policy majors in the College of Natural Resources

**Repeat rules:** Course may be repeated for credit without restriction.

### Hours & Format

**Fall and/or spring:** 15 weeks - 4 hours of independent study per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam not required.

## ENVECON 197 Field Study in Environmental Economics and Policy 1 - 4 Units

Terms offered: Fall 2016, Summer 2016 10 Week Session, Spring 2016  
Supervised experience in off-campus organizations relevant to specific aspects of environmental economics and policy. Regular individual meetings with faculty sponsor and written reports required.

### Rules & Requirements

**Prerequisites:** Consent of instructor

**Credit Restrictions:** Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog.

**Repeat rules:** Course may be repeated for credit without restriction.

### Hours & Format

**Fall and/or spring:** 15 weeks - 1-4 hours of independent study per week

#### Summer:

6 weeks - 1-9 hours of independent study per week

8 weeks - 1-7 hours of independent study per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/  
Undergraduate

**Grading/Final exam status:** Offered for pass/not pass grade only. Final exam not required.

## ENVECON 198 Directed Group Studies for Advanced Undergraduates 1 - 3 Units

Terms offered: Spring 2016, Fall 2015, Spring 2015

Group study of selected topic or topics in Environmental Economics and Policy.

### Rules & Requirements

**Prerequisites:** Consent of instructor

**Credit Restrictions:** Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog.

**Repeat rules:** Course may be repeated for credit without restriction.

### Hours & Format

**Fall and/or spring:** 15 weeks - 1-3 hours of directed group study per week

**Summer:** 8 weeks - 1.5-5.5 hours of directed group study per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/  
Undergraduate

**Grading/Final exam status:** Offered for pass/not pass grade only. Final exam not required.

## ENVECON 199 Supervised Independent Study and Research 1 - 4 Units

Terms offered: Spring 2023, Fall 2021, Spring 2021

Enrollment restrictions apply. Open to qualified upper division students wishing to pursue special study and directed research under the direction of a member of the staff.

### Rules & Requirements

**Prerequisites:** Upper division standing and consent of instructor

**Credit Restrictions:** Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog.

**Repeat rules:** Course may be repeated for credit without restriction.

### Hours & Format

**Fall and/or spring:** 15 weeks - 0 hours of independent study per week

**Summer:** 8 weeks - 1-4 hours of independent study per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/  
Undergraduate

**Grading/Final exam status:** Offered for pass/not pass grade only. Final exam not required.

## ENVECON 199S Sponsored Projects for Undergraduate Research (SPUR) 1 - 4 Units

Terms offered: Prior to 2007

The Sponsored Projects for Undergraduate Research (SPUR) program helps students get involved in research projects with world renowned faculty and staff researchers in the Rausser College of Natural Resource

### Rules & Requirements

**Repeat rules:** Course may be repeated for credit without restriction.

### Hours & Format

**Fall and/or spring:** 15 weeks - 3-12 hours of independent study per week

**Summer:** 12 weeks - 5-18 hours of independent study per week

### Additional Details

**Subject/Course Level:** Environmental Economics and Policy/  
Undergraduate

**Grading/Final exam status:** Offered for pass/not pass grade only. Alternative to final exam.