Forestry

The Master of Forestry (MF) degree is the advanced professional forestry degree granted by the Department of Environmental Science, Policy, and Management. The student who has completed an undergraduate curriculum in forestry is usually broadly trained in the principles of forestry but has not yet developed proficiency in the application of these principles to diverse problems involved in professional practice. The Master of Forestry program is designed to advance the student's understanding of the essentials of professional forest management at the graduate level within the context of resource and environmental planning of sustainable systems.

Admission to the University
Minimum Requirements for Admission
The following minimum requirements apply to all graduate programs and will be verified by the Graduate Division:

1. A bachelor’s degree or recognized equivalent from an accredited institution;
2. A grade point average of B or better (3.0);
3. If the applicant comes from a country or political entity (e.g., Quebec) where English is not the official language, adequate proficiency in English to do graduate work, as evidenced by a TOEFL score of at least 90 on the iBT test, 570 on the paper-and-pencil test, or an IELTS Band score of at least 7 (note that individual programs may set higher levels for any of these); and
4. Sufficient undergraduate training to do graduate work in the given field.

Applicants Who Already Hold a Graduate Degree
The Graduate Council views academic degrees not as vocational training certificates, but as evidence of broad training in research methods, independent study, and articulation of learning. Therefore, applicants who already have academic graduate degrees should be able to pursue new subject matter at an advanced level without need to enroll in a related or similar graduate program.

Programs may consider students for an additional academic master’s or professional master’s degree only if the additional degree is in a distinctly different field.

Applicants admitted to a doctoral program that requires a master’s degree to be earned at Berkeley as a prerequisite (even though the applicant already has a master’s degree from another institution in the same or a closely allied field of study) will be permitted to undertake the second master’s degree, despite the overlap in field.

The Graduate Division will admit students for a second doctoral degree only if they meet the following guidelines:

1. Applicants with doctoral degrees may be admitted for an additional doctoral degree only if that degree program is in a general area of knowledge distinctly different from the field in which they earned their original degree. For example, a physics PhD could be admitted to a doctoral degree program in music or history; however, a student with a doctoral degree in mathematics would not be permitted to add a PhD in statistics.
2. Applicants who hold the PhD degree may be admitted to a professional doctorate or professional master’s degree program if there is no duplication of training involved.

Applicants may apply only to one single degree program or one concurrent degree program per admission cycle.

Required Documents for Applications

1. Transcripts: Applicants may upload unofficial transcripts with your application for the departmental initial review. If the applicant is admitted, then official transcripts of all college-level work will be required. Official transcripts must be in sealed envelopes as issued by the school(s) attended. If you have attended Berkeley, upload your unofficial transcript with your application for the departmental initial review. If you are admitted, an official transcript with evidence of degree conferral will not be required.
2. Letters of recommendation: Applicants may request online letters of recommendation through the online application system. Hard copies of recommendation letters must be sent directly to the program, not the Graduate Division.
3. Evidence of English language proficiency: All applicants from countries or political entities in which the official language is not English are required to submit official evidence of English language proficiency. This applies to applicants from Bangladesh, Burma, Nepal, India, Pakistan, Latin America, the Middle East, the People’s Republic of China, Taiwan, Japan, Korea, Southeast Asia, most European countries, and Quebec (Canada). However, applicants who, at the time of application, have already completed at least one year of full-time academic coursework with grades of B or better at a US university may submit an official transcript from the US university to fulfill this requirement. The following courses will not fulfill this requirement:
   • courses of a non-academic nature.
   • courses that will be completed after the application is submitted, and
   • courses conducted in a language other than English.
   • courses in English as a Second Language.
   • courses of a non-academic nature.

If applicants have previously been denied admission to Berkeley on the basis of their English language proficiency, they must submit new test scores that meet the current minimum from one of the standardized tests.

Where to Apply
Visit the Berkeley Graduate Division application page (http://grad.berkeley.edu/admissions/apply).

Curriculum
The MF program has four components: course work, an internship, a professional paper, and an oral examination, and typically takes about two years for completion.

Course work
Twenty-four semester units of upper division and graduate courses, of which at least 12 units are at the graduate level. The Forestry graduate adviser and the student’s guiding professor must approve the program of study to assure advanced specialized training in professional forest resource management. Advanced courses in forest measurements, silviculture, and management are required.

Internship

Normally with a public or private forestland management organization, the internship provides direct experience in the application of theory to professional land management.

**Professional paper**
The paper demonstrates a student's ability to assemble and analyze data and to recommend a resolution of an applied forest problem. The paper may be based on the internship or on another supervised professional work experience, or may be a report based on independent analysis. The paper must have guiding professor and forestry graduate adviser acceptance and approval.

**Oral Exam**
A comprehensive oral examination covering forest management is taken after completion of course work and approval of the professional paper. Primary emphasis will be on work done in the period of residence, but students should also be prepared to demonstrate mastery of the general field of forestry.

For more information on the Master of Forestry degree, please contact Roxanne Heglar (http://ourenvironment.berkeley.edu/people_profiles/roxanne-heglar), the forestry graduate adviser.

### Forestry

**ENVECON C1 Introduction to Environmental Economics and Policy 4 Units**
Offered through: Agricultural and Resource Economics
Terms offered: Fall 2018, Spring 2018, Fall 2017
Introduction to microeconomics with emphasis on resource, agricultural, and environmental issues.
Introduction to Environmental Economics and Policy: Read More [+]

**Rules & Requirements**

**Prerequisites:** Mathematics 32

**Credit Restrictions:** Students will receive no credit after taking Economics 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

Introduction to Environmental Economics and Policy: Read Less [-]

**ENVECON 39D Freshman/Sophomore Seminar 1.5 - 4 Units**
Offered through: Agricultural and Resource Economics
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.

Freshman/Sophomore Seminar: Read More [+]

**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.

Freshman/Sophomore Seminar: Read Less [-]

**ENVECON 98 Directed Group Studies (for Lower Division Students) 1 - 3 Units**
Offered through: Agricultural and Resource Economics
Terms offered: Spring 2001
Group study (or seminar) of a selected topic or topics in Environmental Economics and Policy.

Directed Group Studies (for Lower Division Students): Read More [+]

**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.

Directed Group Studies (for Lower Division Students): Read Less [-]
ENVECON 100 Microeconomic Theory with Application to Natural Resources 4 Units
Offered through: Agricultural and Resource Economics
Terms offered: Fall 2018, Spring 2018, Fall 2017
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.
Microeconomic Theory with Application to Natural Resources: Read More [+]
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 100 after completing 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 and Rausser
Microeconomic Theory with Application to Natural Resources: Read Less [-]

ENVECON C101 Environmental Economics 4 Units
Offered through: Agricultural and Resource Economics
Terms offered: Summer 2018 8 Week Session, Spring 2018, Summer 2017 8 Week Session, Spring 2017, Summer 2016
Environmental Economics: Read More [+] 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
Environmental Economics: Read Less [-]

ENVECON C102 Natural Resource Economics 4 Units
Offered through: Agricultural and Resource Economics
Terms offered: Fall 2018, Fall 2017, Fall 2016
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.
Natural Resource Economics: Read More [+]
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
Natural Resource Economics: Read Less [-]
**ENVECON 103 Intermediate Microeconomic Theory with Application to Natural Resources 4 Units**
Offered through: Agricultural and Resource Economics
Terms offered: Not yet offered
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.
Intermediate Microeconomic Theory with Application to Natural Resources: Read More [+]

**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

Intermediate Microeconomic Theory with Application to Natural Resources: Read Less [-]

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**ENVECON C115 Modeling and Management of Biological Resources 4 Units**
Offered through: Agricultural and Resource Economics
Terms offered: Fall 2018, Fall 2017, Fall 2015
Modeling and Management of Biological Resources: Read More [+]

**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

Modeling and Management of Biological Resources: Read Less [-]
ENVECON C118 Introductory Applied Econometrics 4 Units
Offered through: Agricultural and Resource Economics
Terms offered: Fall 2018, Summer 2018 8 Week Session, Spring 2018
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.

Introductory Applied Econometrics: Read More [+]

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: Sadoulet
Also listed as: IAS C118
Introductory Applied Econometrics: Read Less [-]

ENVECON 131 Globalization and the Natural Environment 3 Units
Offered through: Agricultural and Resource Economics
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.

Globalization and the Natural Environment: Read More [+]

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
Globalization and the Natural Environment: Read Less [-]

ENVECON 140AC Economics of Race, Agriculture, and the Environment 3 Units
Offered through: Agricultural and Resource Economics
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.

Economics of Race, Agriculture, and the Environment: Read More [+]

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
Economics of Race, Agriculture, and the Environment: Read Less [-]
ENVECON 141 Agricultural and Environmental Policy 4 Units
Offered through: Agricultural and Resource Economics
Terms offered: Fall 2018, Summer 2018 8 Week Session, Fall 2017
This course considers the formation, implementation, and impact of public policies affecting agriculture and the environment. Economic approaches to public lawmakers, 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.
Agricultural and Environmental Policy: Read More [+]

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.
Agricultural and Environmental Policy: Read Less [-]

ENVECON 142 Industrial Organization with Applications to Agriculture and Natural Resources 4 Units
Offered through: Agricultural and Resource Economics
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.
Industrial Organization with Applications to Agriculture and Natural Resources: Read More [+]

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

Industrial Organization with Applications to Agriculture and Natural Resources: Read Less [-]
ENVECON 143 Economics of Innovation and Intellectual Property 4 Units
Offered through: Agricultural and Resource Economics
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.
Economics of Innovation and Intellectual Property: Read More [+]

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

Economics of Innovation and Intellectual Property: Read Less [-]

ENVECON 145 Health and Environmental Economic Policy 4 Units
Offered through: Agricultural and Resource Economics
Terms offered: Fall 2016, Fall 2015, Fall 2014
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.
Health and Environmental Economic Policy: Read More [+]

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

Health and Environmental Economic Policy: Read Less [-]

ENVECON 147 Regulation of Energy and the Environment 4 Units
Offered through: Agricultural and Resource Economics
Terms offered: Spring 2017, Spring 2016, Spring 2015
This is an applied economics course on government regulation of energy with an emphasis on policies that seek to mitigate the impact of energy production and consumption on the environment. The course is designed to help students make connections between economic concepts and real world regulatory policy questions and issues.
Regulation of Energy and the Environment: Read More [+]

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

Regulation of Energy and the Environment: Read Less [-]

ENVECON C151 Economic Development 4 Units
Offered through: Agricultural and Resource Economics
Terms offered: Fall 2018, Fall 2017, Spring 2017
Problems of underdevelopment and poverty, policy issues, and development strategy.
Economic Development: Read More [+]

Rules & Requirements
Prerequisites: 100, Economics 100A or 101A

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.
Instructor: de Janvry
Also listed as: ECON C171
Economic Development: Read Less [-]
ENVECON 152 Advanced Topics in Development and International Trade 3 Units
Offered through: Agricultural and Resource Economics
Terms offered: Spring 2018, Fall 2016, Fall 2015
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
Offered through: Agricultural and Resource Economics
Terms offered: Spring 2014, Fall 2013, Spring 2013
This course takes an interdisciplinary approach to the complex interactions between population, environmental change, and economic development, including the leading theories for understanding these interactions. The origins and history of current debates are discussed as well as some of the major issues stemming from these debates, such as immigration, international trade, family planning policies and concerns over the global commons. Specific natural resources and services like fresh water, food supply, and forest cover are analyzed as case studies. Policy options for sustainable development are discussed.

Rules & Requirements
Prerequisites: Intermediate microeconomic theory or consent of instructor

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: Boettiger

ENVECON 154 Economics of Poverty and Technology 3 Units
Offered through: Agricultural and Resource Economics
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

ENVECON 161 Advanced Topics in Environmental and Resource Economics 4 Units
Offered through: Agricultural and Resource Economics
Terms offered: Fall 2013, Fall 2012, Fall 2011
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.

Advanced Topics in Environmental and Resource Economics: Read Less [-]
ENVECON 162 Economics of Water Resources 3 Units
Offered through: Agricultural and Resource Economics
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.
Economics of Water Resources: Read More [+]

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.

Economics of Water Resources: Read Less [-]

ENVECON C175 The Economics of Climate Change 4 Units
Offered through: Agricultural and Resource Economics
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.
The Economics of Climate Change: Read More [+]

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
The Economics of Climate Change: Read Less [-]

ENVECON C176 Climate Change Economics 4 Units
Offered through: Agricultural and Resource Economics
Terms offered: Fall 2018, Fall 2017, Fall 2016
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.
Climate Change Economics: Read More [+]

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: 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
Climate Change Economics: Read Less [-]
**ENVECON C181 International Trade 4 Units**
Offered through: Agricultural and Resource Economics  
Terms offered: Fall 2018, Spring 2018, Fall 2017  
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.  
International Trade: Read More [+]

**Rules & Requirements**
Prerequisites: Economics100A-100B or Economics 101A-101B  
Credit Restrictions: Students will receive no credit for Economics C181/Environmental Economics C181 after completing Economics 181 or N181. A deficient grade in Economics 181, or N181 may be removed by taking Economics C181/Environment Economics and Policy C181.<BR/>

**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**
Offered through: Agricultural and Resource Economics  
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.  
Forest Ecosystem Management: Read More [+]

**Rules & Requirements**
Prerequisites: Student must be a senior with at least a 3.6 GPA in the Environmental Economics and Policy major  
Repeat rules: Course may be repeated for credit without restriction.

**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.

**ENVECON 195 Senior Thesis 4 Units**
Offered through: Agricultural and Resource Economics  
Terms offered: Fall 2017, Fall 2016, Spring 2016  
Writing of a thesis under the direction of member(s) of the faculty. Subject must be approved by faculty sponsor.  
Senior Thesis: Read More [+]

**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 H196 Honors Research 4 Units
Offered through: Agricultural and Resource Economics
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.
Honors Research: Read More [+]

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.
Honors Research: Read Less [-]

ENVECON 197 Field Study in Environmental Economics and Policy 1 - 3 Units
Offered through: Agricultural and Resource Economics
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.
Field Study in Environmental Economics and Policy: Read More [+]

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.
Directed Group Studies for Advanced Undergraduates: Read Less [-]

ENVECON 198 Directed Group Studies for Advanced Undergraduates 1 - 3 Units
Offered through: Agricultural and Resource Economics
Terms offered: Spring 2018, Fall 2017, Fall 2016
Group study of selected topic or topics in Environmental Economics and Policy.
Directed Group Studies for Advanced Undergraduates: Read More [+]

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.
Directed Group Studies for Advanced Undergraduates: Read Less [-]

ENVECON 199 Supervised Independent Study and Research 1 - 4 Units
Offered through: Agricultural and Resource Economics
Terms offered: Spring 2018, Fall 2017, Fall 2016
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.
Supervised Independent Study and Research: Read More [+]

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.
Supervised Independent Study and Research: Read Less [-]