



AEC 550: ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS

Credits: 4

Course Meeting Times: Lecture MW 10:00 - 11:50 pm, STAG 163

Prerequisites: A working knowledge of microeconomic theory at the level of AEC 512 is required and applied econometrics at the level of AEC 525 is recommended.

Course Catalog Description

This course introduces the economic concepts, theories, and methods needed for the analysis of environmental and natural resource problems. The emphasis is on the economics of environmental policies and the development of decision rules regarding the efficient use of natural resources.

Professor

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Office Hours: Mondays 2 pm - 3 pm; Wednesday 1 pm - 2 pm in Ballard 212. I am also available other times by email appt. for either in-person or Zoom meetings.

Course Canvas Site: <https://canvas.oregonstate.edu/courses/1963502>

Course Objectives

My objectives for this course are to:

1. Provide students with a clear understanding of how to apply economic theory to issues of the environment and management of natural resources.
2. Introduce students to the theory, empirical findings, and important policy implications of environmental and resource economics at a level appropriate for graduate students.
3. Increase students' ability to define environmental and natural resource problems, analyze information, and develop research questions
4. Provide students with a foundation for conducting applied research in environmental and natural resource economics (e.g., M.S. Thesis)

Learning Outcomes

Upon successful completion of this course, a student will be able to:

1. Explain the theory of externalities and market failures as applied to the environment.
2. Explain the economic theory and intuition of regulating pollution and the instruments available to policy makers (i.e., regulatory standards, taxes, tradable permits).
3. Use microeconomic concepts to define efficiency measures and other criteria for evaluating natural resource allocations and policies and identify potential sources of inefficiency and policy options to reduce such inefficiencies.
4. Describe and critically evaluate the empirical evidence relevant to the application of economic models to environmental and natural resource issues.
5. Frame and discuss environmental and resource issues and policy in terms of economic theory and empirical evidence.

Textbooks and Readings

There are two required textbooks for this course.

Environmental Economics In Theory and Practice, 2nd Edition (2007)

Authors: Nick Hanley, Jason F. Shogren, and Ben White

Publisher: Palgrave Macmillian

Resource Economics, 2nd Edition (2010)

Author: Jon M. Conrad

Publisher: Cambridge

This second book is available electronically free of charge through the OSU library. You will need to use your ONID login to access the book either [here](#). If you prefer a physical copy of the book, it is available for under \$40 at the [OSU Beaver Store website](#) or Amazon.

Lectures and class discussions use these textbooks as a foundation; however, these books do not contain ALL the material needed to master this course. All additional required readings are posted as PDF files on the courses Canvas site.

Evaluation

Your final grade will depend on the following:

	<u>Grade %</u>	<u>Relevant dates</u>
Midterm Exam	25 %	Week of May 6 th
Final Exam	25 %	Tuesday, June 11 th @ 6:00 pm
Problem Sets (5)	25 %	Multiple due dates
Research Assignment	25 %	Multiple due dates

The research assignment for this course is comprised of 3 steps with specific due dates: 1) topic selection, 2) a literature review of an assigned set of papers, and 3) a research proposal based on gaps found in your literature review along with a class presentation. This assignment is geared toward getting early-career graduate students to begin to think about conducting research in environmental and resource economics. This assignment is flexible to suit each student's needs given the likely variety of research experience in the class.

Course Content

This is a general course outline and subject to additions and subtractions. Please reference the Canvas site for the reading list and assignments. "HSW" in the outline below refers to the Hanley, Shogren, and White's *Environmental Economics In Theory and Practice* text and "C" refers to Conrad's *Resource Economics* text. All other reading are available as PDF files on the Canvas site. Readings with **authors in bold** are required while the others are highly recommended.

Part 1: Environmental Economics

Introduction

- **HSW: Chapter 1**
- **Krutilla, J. 1967.** Conservation Reconsidered. *American Economic Review* 57: 777-86.
- Cropper M. and W. Oates. 1992. Environmental Economics: A Survey. *Journal of Economic Literature* 30(2): 675-740.
- Stavins, R. 2007. Environmental Economics. NBER Working Paper

Market Failure & Efficiency

- **HSW: Chapter 3**
- **Baumol and Oates: Chapter 3**
- **Sathirathai, S., and E.B. Barbier. 2001.** "Valuing Mangrove Conservation in Southern Thailand." *Contemporary Economic Policy* 19(2): 109-122.

Pollution Control Model

- **HSW: Chapter 3 & 4**

Policy Analysis

Property rights

- **HSW: Chapter 3**
- **Coase, R. 1960.** "The Problem of Social Cost," *Journal of Law and Economics*, 3: 1-44.
- **Depres, C., G. Grolleau, and N. Mzoughi. 2008.** "Contracting for Environmental Property Rights: The Case of Vittel." *Economica* 75: 412–434

Liability

- **HSW: Chapter 3**
- **Alberini, A., and D.H. Austin. 1999.** "Strict Liability as a Deterrent in Toxic Waste Management: Empirical Evidence from Accident and Spill Data." *Journal of Environmental Economics and Management* 38: 20-48.

Command-and-Control

- **Kolstad: Chapter 11**

Taxes and Tradeable Permits

- **HSW: Chapters 4 & 5**
- Baumol & Oates: Chapters 11 & 14
- **Goulder L.H. and Ian Parry. 2008.** "Instrument Choice in Environmental Policy." *Review of Environmental Economics and Policy*, 2(2): 152-174.
- **Metcalf, G.E. 2009.** "Market-based Policy Options to Control U.S. Greenhouse Gas Emissions." *Journal of Economic Perspectives*, 23(2): 5-27.
- **Schmalensee, R. and R.N. Stavins. 2013.** "The SO₂ Allowance Trading System: The Ironic History of a Grand Policy Experiment." *Journal of Economic Perspectives* 27(1): 103-122.

Prices v. Quantities: Policy Choice with Uncertainty

- **HSW: Chapter 4**
- Baumol and Oates: Chapter 5
- **Pizer, W.A. 2001.** "Choosing Price or Quantity Controls for Greenhouse Gases." In M. Toman, Ed., *Climate Change Economics and Policy: An RFF Anthology*.

Part II: Natural Resource Economics

Conceptual Framework

- **C: Chapter 1**

Renewable Resources

Fisheries

- **C: Chapters 1, 2, & 3**
- **Repetto, R. 2001.** "A Natural Experiment in Fisheries Management." *Marine Policy* 25: 252 – 264.
- Gordon, H.S. 1954. "The Economic Theory of a Common-Property Resource: The Fishery." *Journal of Political Economy*, 62(2): 124-142.
- Smith, M.D. 2012. "The New Fisheries Economics: Incentives Across Many Margins," *Annual Review of Resource Economics*, 4: 379-402.

Forestry

- **C: Chapters 1, 2, & 4**

Nonrenewable Resources

- **C: Chapters 1, 2, & 5**
- **Livernois, J.** "On the Empirical Significance of the Hotelling Rule." In Stavins, Ch. 19.

Course Policies

Guidelines for a Productive and Effective Classroom: Students are expected to conduct themselves in the course in compliance with the university's regulations regarding civility. Civility is an essential ingredient for academic discourse. All communications for this course should be conducted constructively, civilly, and respectfully. Differences in beliefs, opinions, and approaches are to be expected. In all you say and do for this course, be professional. Please bring any communications you believe to be in violation of this class policy to the attention of your instructor. Active interaction with peers and your instructor is essential to success in the remote delivery of this course.

Technical Assistance: If you experience any problems with this remote-delivery course, contact 24-7 Canvas Support through the Help link within Canvas. If you experience computer difficulties, need help downloading a browser or plug-in, or need assistance logging into a course, contact the IS Service Desk for assistance. You can call (541) 737-8787 or visit the [IS Service Desk](#) online.

Late Work Policy: Late Assignments will simply not be accepted at any time in this course. In other words, please do not expect to receive partial credit if you attempt to turn in an assignment after it is due.

Makeup Exams: Makeup exams will be given only for missed exams excused in advance by the instructor. Excused absences will not be given for airline reservations, routine illness (colds, flu, stomach aches), or other common ailments. Excused absences will not be given under any

circumstances after the exam has occurred.

Incompletes: Incomplete (I) grades will be granted only in emergency cases (usually only for a death in the family, major illness or injury, or birth of your child), and if the student has turned in 80% of the points possible. If you are having any difficulty that might prevent you completing the coursework, please don't wait until the end of the term; let me know right away.

Academic Calendar: All students are subject to the registration and refund deadlines as stated in the Academic Calendar: <https://registrar.oregonstate.edu/osu-academic-calendar>

Statement Regarding Students with Disabilities: Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at <http://ds.oregonstate.edu>. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

Statement Regarding Religious Accommodation: Oregon State University is required to provide reasonable accommodations for employee and student sincerely held religious beliefs. It is incumbent on the student making the request to make the faculty member aware of the request as soon as possible prior to the need for the accommodation. See the [Religious Accommodation Process for Students](#).

Expectations for Student Conduct: Student conduct is governed by the university's policies, as explained in the Student Conduct Code (<https://beav.es/codeofconduct>). Students are expected to conduct themselves in the course (e.g., on discussion boards, email postings) in compliance with the university's regulations regarding civility.

Reach Out for Success: University students encounter setbacks from time to time. If you encounter difficulties and need assistance, it's important to reach out. Consider discussing the situation with an instructor or academic advisor. Learn about resources that assist with wellness and academic success at oregonstate.edu/ReachOut. If you are in immediate crisis, please contact the Crisis Text Line by texting OREGON to 741-741 or call the National Suicide Prevention Lifeline at 1-800-273-TALK (8255)

Academic Integrity: Integrity is a character-driven commitment to honesty, doing what is right, and guiding others to do what is right. Oregon State University Ecampus students and faculty have a responsibility to act with integrity in all our educational work, and that integrity enables this community of learners to interact in the spirit of trust, honesty, and fairness across the globe. Academic misconduct, or violations of academic integrity, can fall into seven broad areas, including but not limited to: cheating; plagiarism; falsification; assisting; tampering; multiple submissions of work; and unauthorized recording and use. It is important that you understand what student actions are defined as academic misconduct at Oregon State University. The OSU Libraries offer a [tutorial on academic misconduct](#), and you can also refer to the [OSU Student Code of Conduct](#) and [the Office of Student Conduct and Community Standard's website](#) for more information. More importantly, if you are unsure if something will violate our academic integrity policy, ask your professors, GTAs, academic advisors, or academic integrity officers.

Lauren's Promise: I will listen and believe you if someone is threatening you.

Lauren McCluskey, a 21-year-old honors student athlete, was murdered on October 22, 2018, by a man she briefly dated on the University of Utah Campus. We must all take actions to ensure this never happens again. Any form of sexual harassment or violence will not be excused or tolerated at Oregon State University. All individuals who are participating in university programs and activities have the right to do so fully, free from sexual discrimination, misconduct, and retaliation. The university prohibits sexual misconduct of any kind, including sexual harassment, intimate partner violence, sexual exploitation, and stalking. When such misconduct occurs, the university will take steps to stop, prevent recurrence, and remedy the impacts of such behavior. **If you feel you are in danger, call 911.**

All Oregon State University employees are considered "Responsible Employees" and must consult with the Office of Equal Opportunity and Access when they are ***made aware or have reason to believe*** that a violation of the Sexual Misconduct and Discrimination policy has occurred. However, the university makes several confidential offices available to those who have been affected by sexual misconduct or discrimination. The following offices do not report sexual assaults or other sexual misconduct or discrimination claims to other university offices, but can refer students and employees to resources and services both on campus and within the community: [Survivor Advocacy and Resource Center \(SARC\)](#), [Counseling and Psychological Services \(CAPS\)](#), [Student Health Services \(SHS\)](#), and the [University Ombuds](#).

Student Evaluation of Courses: During Fall, Winter, and Spring term, the online Student Evaluation of Teaching system opens to students the Wednesday of week 8 and closes the Sunday before Finals Week. Students receive notification, instructions and the link through their ONID. They may also log into the system via Online Services. Course evaluation results are extremely important and used to help improve courses and the hybrid learning experience for future students. Responses are anonymous (unless a student chooses to "sign" their comments, agreeing to relinquish anonymity) and unavailable to instructors until after grades have been posted. The results of scaled questions and signed comments go to both the instructor and their unit head/supervisor. Anonymous (unsigned) comments go to the instructor only.

