

# **AEC 550: Environmental and Natural Resource Economics**

Winter 2019      TR 2:00 pm – 3:50 pm      Strand Agricultural Hall 112

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**Office Hours:** TR 12:00-1:30; 4:00 – 5:00, or by email appointment

**Course Canvas Site:** <https://oregonstate.instructure.com/courses/1704563>

**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 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.

**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, 2<sup>nd</sup> Edition*** (2007)

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

Publisher: Palgrave Macmillian

***Resource Economics, 2<sup>nd</sup> Edition*** (2010)

Author: Jon M. Conrad

Publisher: Cambridge

Lectures and discussion in class use these textbook 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 %	T February 19 <sup>th</sup> @ 2 PM
Final Exam	25 %	M March 18 <sup>th</sup> @ 12 noon
Problem Sets (5)	25 %	Multiple due dates
Research Assignment	25 %	Multiple due dates

Late problem sets or research assignments will not be accepted. There are no makeup exams or extra credit assignments. Any unexcused absence from an exam will receive a grade of zero. An absence will be excused only with appropriate documentation.

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. This assignment is geared toward getting early-career graduate students to begin to think about conducting research in environmental and resource economics. I understand there is likely a variety of research experience in the class and this assignment will be flexible to suit each student's needs.

All of the dates above are subject to minor changes as the quarter progresses.

**Course Policies:** I have scheduled open office hours each week and I am available by appointment subject to my availability. **Individual office visits may be one of the most productive parts of the course for you.** I am here to help your learning process and development as a scholar.

**Statement Regarding Students with Disabilities:** Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 541-737-4098.

**Student Conduct and Academic Integrity:** Students are required to comply with Oregon State University policies on student conduct and academic integrity. Academic dishonesty (e.g. cheating, plagiarism) and disruptive behavior will not be tolerated in this course. More information on the university's policies can be found here:  
[http://studentlife.oregonstate.edu/sites/studentlife.oregonstate.edu/files/code\\_of\\_student\\_conduct.pdf](http://studentlife.oregonstate.edu/sites/studentlife.oregonstate.edu/files/code_of_student_conduct.pdf)

**Religious Holiday Statement:** Oregon State University strives to respect all religious practices. If you have religious holidays that are in conflict with any of the requirements of this class, please see me immediately so that we can make alternative arrangements.

**Student Evaluation of Courses:** The online Student Evaluation of Teaching system opens to students the Monday of dead week and closes the Monday following the end of finals. Students will 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 learning experience of 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.

**General Course Outline:** 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.

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## **Part 1: Environmental Economics**

### Introduction

- **HSW: Chapter 1**
- **Krutilla, J. 1967.** Conservation Reconsidered. *American Economic Review* 57(4): 777-786.
- 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 SO<sub>2</sub> 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*.

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## **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.