AREC 550 – Environmental and Natural Resource Economics
4 Credits

Professor
Christian Langpap
Department of Applied Economics
Office: 240 E Ballard Hall; Phone: 737 1473, E-mail: christian.langpap@oregonstate.edu

Course Description
This course presents concepts, theories, and methods used in the economic analysis of environmental and natural resource issues. The emphasis is on the economics of environmental policies and the development of decision rules regarding the efficient use of natural resources.

Objectives
The course objectives are:

- To provide students with an understanding of how basic microeconomic theory and econometric methods can be applied to environmental and natural resource management issues.
- To introduce students to the theory, empirical evidence, and applied policy implications of environmental and natural resource economics at a level appropriate for M.S. students.
- To provide students with the necessary background to conduct applied research in environmental and natural resource economics at a level appropriate for an M.S. thesis.

Learning Outcomes
Students completing this class successfully will be:

- Able to explain the basic economic theory behind market failures relevant to environmental issues;
- Able to explain the basic economic theory of pollution regulation, including choice of regulatory instrument (standards, taxes, and tradable permits);
- Able to 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.
- Able to describe the empirical evidence relevant to the application of economic models to environmental and natural resource issues;
- Able to frame and discuss environmental and resource issues and policy within the context of economic theory and the corresponding empirical evidence.

Prerequisites: AEC 512

Lectures: The class meets for 3 hours and 40 minutes per week: Monday, Wednesday, 2:00 – 3:50.

Office Hours: Tuesday, Thursday 0:00 – 0:00 or by appointment.
Textbooks (Required):


Other potentially useful books:


The Hanley, Shogren, & White (HSW) and Conrad books are available at the OSU bookstore. The Kolstad, Baumol & Oates, and Pearce & Turner books are on reserve at Valley Library. All other required or recommended readings will be available on Blackboard. References in **bold type** are required, others are recommended.

Course Requirements

Problem Sets: 30% total.
Midterm Exam: 35%.
Final Exam: 35%.

There are no exceptions to these dates. Please make travel plans accordingly. 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.
Course Outline and Readings (tentative)

I. Introduction

   HSW, Ch. 1
   Pearce & Turner, Ch. 2

II. Environmental Economics


      HSW, Ch. 3
      Baumol & Oates, Ch. 3
      Kolstad, Ch. 5

   2. Economics of Pollution Control

      HSW, Ch. 3, 4
      Pearce & Turner, Ch. 4

   3. Environmental Policy Analysis

      3.1 Decentralized Approaches

         a. Property Rights

            HSW, Ch. 3
            Coase, R. The Problem of Social Cost, Ch. 3 in Stavins.
            Pearce & Turner, Ch. 5
            Kolstad, Ch. 13

         b. Liability

            HSW, Ch. 3
            Pearce & Turner, Ch. 5
            Kolstad, Ch. 18

      3.2 “Centralized” Approaches

         a. Command and Control

            Kolstad, Ch. 11
            Pearce & Turner, Ch. 7
b. Pollution Charges (Taxes)

HSW, Ch. 4, 5  
Baumol & Oates, Ch. 11, 14  
Pearce & Turner, Ch. 6, 7.  
Kolstad, Ch. 12.

c. Tradable Pollution Permits

HSW, Ch. 5  
Pearce & Turner Ch. 8  
Kolstad, Ch. 13  

d. Prices vs. Quantities: Policy Choice Under Uncertainty

HSW, Ch. 4  
Baumol & Oates, Ch. 5  
Kolstad, Ch. 15

III. Natural Resource Economics

1. Basic Concepts: Renewable and nonrenewable resources, discounting, and basics of dynamic optimization.

Conrad, Ch. 1  
Pearce & Turner, Ch. 14.  
Hartwick & Olewiler, Ch. 1.

2. Renewable Resources

a. Fisheries

Conrad, Ch. 3  
Pearce & Turner, Ch. 16, 17.  
Hartwick & Olewiler, Ch. 4, 5.

b. Forestry

Conrad, Ch. 4  
Pearce & Turner, Ch. 16, 17.  
Hartwick & Olewiler, Ch. 10.
c. Water

**Hartwick & Olewiler, Ch. 3, p. 75 – 86.**
Olmstead, S.M. “The Economics of Managing Scarce Water Resources.” In Stavins, Ch. 21

3. Nonrenewable Resources

**Conrad, Ch. 5**
Pearce & Turner Ch. 18
Hartwick & Olewiler, Ch. 8, 9.

4. Option Value

**Conrad, Ch. 7**
Pearce & Turner Ch. 20

---

**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 737-4098.

**Student Conduct**

OSU policies with regard to academic dishonesty and disruptive behavior will be strictly followed. Oregon State University defines academic dishonesty as: “An intentional act of deception in which a student seeks to claim credit for the work or effort of another person or uses unauthorized materials or fabricated information in any academic work.” Academic dishonesty includes: Cheating, Fabrication, Assisting, Tampering, Plagiarism. More information is available at: [http://oregonstate.edu/admin/stucon/achon.htm](http://oregonstate.edu/admin/stucon/achon.htm)