Policy Studies 115/250

Environmental & Resource Economics and Policy

Course Syllabus

Instructor: J.R. DeShazo, Assistant Professor, Policy Studies
Office: 6325 Public Policy Building
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Office hours: Monday 2:30 to 3:30 or by appointment
Class meetings: Tuesday and Thursday 1:30 to 2:30 PM
Class location: 4357B Public Policy Building

About the course

We provide a survey of the ways in which economics is used to define, analyze and resolve problems of environmental management. We explore answers to four broad questions. First, how should we evaluate the social costs and benefits of rival environmental policies? Second, how may we value the social benefits provided by the environment? Third, how should we determine the optimal level of pollution and choose policies that efficiently achieve it? Fourth, how should we manage renewable resources (forests, fisheries & water) and non-renewable resources (oil & minerals)? Throughout the course, we contrast the normative recommendations of economic principles and models with the political outcomes observed through the use of policy case studies. See the attached outline for a more detailed presentation of the content of the course.

Course Requirements

The course is suitable for graduate students and advanced undergraduate students who want an overview of the analytical questions addressed by environmental economists that bear on public policies.

Prerequisites. Prerequisites for the course are a thorough understanding of intermediate microeconomics, basic calculus and simple regression analysis. Therefore students should have had Econ 11 and Econ 143 or PS 204 and PS 208 or UP 207 and UP 220B prior to enrolling.

Grading. Grades for the course will be based on a midterm exam, final exam, and two problem sets as follows.

Participation	10%
Problem Sets	15%
Midterm	35%
Final	40%

The problem sets will require reasoning and problem-solving skills using the economic principles taught in class. Late problem sets will be penalized by 3 points.

Readings. The course reader is available at Westwood Copies as of Jan 7.

Environmental and Natural Resource Economics and Policy
Course Outline

I. An Introduction to Environmental Economics

A. Principles of Economics in Environmental Management

What is an "environmental problem" in economics?

B. Social Cost-Benefit Analysis & Cost Effectiveness Analysis

How do we manage the environment to maximize human welfare?

C. Market Failure and Externalities

What are the types and causes of externalities that affect the environment?

D. Public Choices

What are the types of remedies available to policy makers?

II. Measuring the Costs and Benefits of Providing Environmental Amenities

A. Measuring the Costs of Provision

How do we measure the costs of improving environmental amenities?

B. Total Economic Value

How do we measure the benefits of improving an environmental amenity?

C. Methods: productivity loss, defensive, mitigating, travel cost, hedonic and contingent valuation.

When are these methods appropriate to use? And what are the strengths and weaknesses of each?

D. Valuation and Policy Relevance

How is benefit information used in policy formulation and implementation?

Section Case Study: Exxon Valdez Oil Spill

III. POLLUTION AND REGULATING POLLUTERS

A. The optimal level of pollution

What is the economically efficient level of pollution?

B. Minimizing the cost of pollution abatement:
technology standards, emission standards, taxes and permits

Which policy instruments are most efficient and why?

C. The political economy of instrument choice

Which policy instruments are preferred by the polluters and why?

Section Case Study: Air Pollution Policy in California

IV. NON-RENEWABLE AND RENEWABLE RESOURCES

A. The Mine: Energy and Minerals

What is the optimal extraction schedule and what does it depend upon?

B. Fisheries, Water and Forests

What is the optimal harvesting schedule and what does it depend upon?

C. Markets and Policy Failures

Why are our renewable resource management efforts less successful than our non-renewable management efforts?

Section Case Study: Salmon Fisheries in the Northwest

READINGS

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1 Introduction

How do Economists Really Think About the Environment? Fullerton, D. and R. Stavins 1998. Discussion paper 98-29. Resources for the Future.

What is Environmental Economics? Charles Kolstad. 2000. Chapter 1. In Environmental Economics.

(Optional) *An Overview of Environmental Legislation*) Eban Goodstein.1999. Chapter 13 in Economics and the Environment

2. Why Environmental Economics ? Externalities & Market Failures

Property Rights, Externalities, and Environmental Problems. Tom Tietenberg, 2000. Chapter 4 in Environmental and Natural Resource Economics.

Market Failure: Public Bads and Externalities Charles Kolstad. 2000. Chapter 5 in Environmental Economics.

Dynamic Efficiency. Pages 25-39. Tom Tietenberg, 2000. in Environmental and Natural Resource Economics.

Your Views: *Does Environmental Policy Conflict with Economic Growth* David Gardiner and Paul Portney, Chapter 4 in The RFF Reader.

(Optional) *Efficiency and Markets* Charles Kolstad. 2000. Chapter 4 in Environmental Economics.

3 Social Cost-Benefit Analysis and Cost Effectiveness Analysis

Callan and Thomas, Chapter 9 - Benefit-Cost Analysis in Environmental Decision-Making, pp. 266-292.

Your Views. *Discounting the Future: Economics and Ethics.* Timothy J. Brennan. Chapter 6 in The RFF Reader.

4. Revealed Preference Methods: Travel Cost, Hedonic, Productivity Loss and Others

Environmental Demand Theory. Charles Kolstad. 2000. Chapter 15 in Environmental Economics.

Your Views. *When is a Life too Costly to Save?* George L. Van Houtven and Maureen Cropper . Chapter 7 in The RFF Reader.

Estimating and Valuing Impacts from Observed Behavior. Chapter 10 -, pp. 292-344. Boardman, Anthony, David Greenberg, Aidan Vining and David Weimer. Cost-Benefit Analysis: Concepts and Practice. Upper Saddle River, NJ: Prentice Hall, Inc. (1996).

5. Stated Preference Methods: Contingent Valuation

Contingent Valuation: Using Surveys to Elicit Information about Costs and Benefits. Chapter 11 -, pp. 345. Boardman, Anthony, David Greenberg, Aidan Vining and David Weimer. *Cost-Benefit Analysis: Concepts and Practice.* Upper Saddle River, NJ: Prentice Hall, Inc. (1996).

Your Views. , *The American Trader Oil Spill: A View from the Beaches.* Chapman, D.J., Hanemann, M.W., and Ruud ,1998In AERE News Letter v18, n2, November.

6 Determining the Optimal Level of Pollution

Economics of Pollution Control: An Overview. Tietenberg, Chapter 14

Conventional Solutions to Environmental Problems. Callan and Thomas, Chapter 4

Defining Air Quality: The Standard-Setting Process. Callan and Thomas, Chapter 10

7 Choosing Policy Instruments to Control Pollution

Economic Solutions to Environmental Problems, Callan and Thomas, Chapter 5

Market–Based Environmental Policies Robert Stavins. 1998 “” in Public Polices for Environmental Protection.

8 A Comparative Analysis of Pollution Control instruments

Audits, Enforcement and Moral Hazard Charles Kolstad. 2000. Chapter 11 in Environmental Economics.

Unobserved Control Costs” permits or Fees (p.183) Charles Kolstad. 2000. Environmental Economics.

Your Views*: A Voluntary Approach to Environmental Regulation.* Seema Arora and Timothy Cason. Chapter 15 in The RFF Reader.

9 A Comparative Analysis of Pollution Control instruments

Robert Stavins, 1998. "What Can We learn from the Grand Policy Experiment? Lessons from SO2 Allowance Trading" Prepared for *the Journal of Economic Perspectives*

10. The Global Warming Case

Robert Stavins. 1997. "Policy Instruments for Climate Change: How Can National Government Address and Global Problem" *The University of Chicago Legal Form*, volume 1997.

Chapter 6, James Khan *1998 The Economic Approach to Environmental and Natural Resources*. Harcourt Brace College Publishers.

Your Views: *Trading Emissions to Clean the Air.* Dallas Burtraw. Chapter 12 in The RFF Reader.

11. Environment and Social Justice

Pollution Control Policy: Distributional Effects, Chapter 20 Tietenberg,

Demographics of Dumping II Pamela Davidson and Douglas Anderton Demography, Volume 37-number 4, November 2000

Your Views: *Environmental Federalism* Robert M. Schwab. Chapter 19 in The RFF Reader.

12. Midterm

13. An Introduction to Renewable & Non-renewable Resources

Tietenberg, Chapter 7 - Depletable, Nonrecyclable Energy Resources: Oil, Gas, Coal, and Uranium.

14. The Mine: The Economics of Energy and Mineral Markets

Hartwick, John M. and Nancy D. Olewiler. *The Economics of Natural Resource Use.* New York: Harper and Row, 1986. Chapter 8 Nonrenewable Resources Use: The Theory Of Depletion

Your Views: California's Electricity Crisis

15. Renewable Common Property Resources: Water and Water Pricing

Tietenberg, Chapter 9 - Replenishable but Depletable Resources: Water.

Hartwick, John M. and Nancy D. Olewiler. *The Economics of Natural Resource Use.* New York: Harper and Row, 1986. Chapter 3 Valuation and use of Land and Water

16. Pricing Water: A Case Study

Effective Public Participation in the Rate Setting Process: LADWP Blue Ribbon Committee on Rates by Arlene Wong Chapter *3 Sustainable Uses of Water: California Success Stories*

17. Fisheries: Sustainable Harvesting and Extinction

Hartwick, John M. and Nancy D. Olewiler. *The Economics of Natural Resource Use.* New York: Harper and Row, 1986. Chapter 4 - The Economics of the Fishery: An Introduction, pp. 243-291.

18. Fisheries Management and Regulation continued

Hartwick, John M. and Nancy D. Olewiler. *The Economics of Natural Resource Use.* New York: Harper and Row, 1986. Chapter 5

Your Views: *Ecosystem Management: An Uncharted Path for Public Forests* Rodger Sedjo. Chapter 19 in The RFF Reader.

19. Concepts of Environmental Sustainability

An Almost Practical Step toward Sustainability, Robert Solow. Chapter 33 The RFF Reader.

20. Overview and Summary