

ECON 111

Economics of the Environment

Winter 2004

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Office hours: Tues. 3:30 - 4:30, Wed. 10:30 - 12:00

Description: This is a course in the economic analysis of environmental issues. The emphasis is on the critical evaluation of alternative government policies toward the environment, using both theory and evidence. Applications include global climate change, water and air pollution, hazardous wastes, biodiversity, endangered species, and marine fisheries.

Prerequisites: Econ 5 or Econ 11. Students are expected to have a solid understanding of basic supply and demand analysis.

Textbooks: Barry C. Field and Martha K. Field, *Environmental Economics: An Introduction*, 3rd edition (McGraw-Hill, 2002); Paul R. Portney and Robert N. Stavins, *Public Policies for Environmental Protection*, 2nd edition (Resources for the Future, 2000). Both are required and available for purchase at the bookstore.

Web site: Course materials and links to many of the required readings will be posted to the course web site: <http://angel.scu.edu/>. Please register at the site and check it regularly for announcements, etc. There is also a chat room for discussion of issues raised in the course.

Class time: Lecture and discussion. Reading assignments should be completed prior to the lectures during which they will be discussed.

Requirements/ grading:

Homework	10%
Midterm	30
Research paper	30
Final exam	30

Homework: Homework will consist of problems related to course material and/or discussion questions about assigned readings, and will be graded on a T, T - basis. *Late homework will not be accepted.* The two lowest homework grades (including missed assignments) will be dropped. I encourage you to discuss the homework with other students, but what you hand in must be your own work in your own words.

Research paper: The paper (about 10 pages) should apply the concepts and analytical tools from the course to a current environmental issue. Guidelines and details regarding the paper will distributed later.

Academic integrity: Work on exams and the paper must be your own. Plagiarism or other violations of academic integrity will result in a grade of F for the course and will be reported to the Dean and Office of Student Life.

Feedback: This is a brand new course. Your feedback and suggestions are encouraged.

Schedule / topic outline

Readings:

- FF* Barry C. Field and Martha K. Field, *Environmental Economics: An Introduction*, 3rd edition (McGraw-Hill, 2002)
- PS* Paul R. Portney and Robert N. Stavins, *Public Policies for Environmental Protection*, 2nd edition (Resources for the Future, 2000)
- Etc. Most other readings listed here will be available as links on the course web site, <http://angel.scu.edu/>. In the interests of conserving resources, I encourage you to read the material on-line rather than print it out! A few readings may be placed on reserve at Orradre Library.

Dates are speculative and subject to change.

I. Introduction and analytical tools

January 6 Introduction

- What is environmental economics?
- Views of sustainability and alternative standards for environmental protection
- Economic approach to environmental issues: strengths and weaknesses
- Overview of some specific issues or cases we will examine

Readings: *FF*, chapter 1

[Malthus, *An Essay on the Principle of Population*, chapters 1-2](#)

Background: [EPA, *Draft Report on the Environment 2003*](#)

Background: [World Resources Institute, *Global Environmental Trends* slideshow](#)

January 8 Economic tools for analyzing environmental issues

- Review of basic economic analysis: supply and demand, equilibrium, elasticity
- Economic efficiency and the Pareto criterion
- Efficiency and the market
- Efficiency and equity

Readings: *FF*, chapter 3

January 13 Environmental problems as market failures

- Market failures
- Externalities
- Problems of the commons

Readings: *FF*, chapter 4

[Hardin, "The Tragedy of the Commons"](#)

January 15 Pollution control: analytical framework

- Marginal damages and marginal abatement costs
- Efficient level of pollution
- Equimarginal principle

Readings: *FF*, chapter 5

II. Cost-benefit analysis of environmental policy

January 20 Cost-benefit analysis: general considerations

- Defining benefits and costs of environmental regulation
- Ethics of cost-benefit analysis
- Discounting future costs and benefits
- Uncertainty
- Other values: equity, aesthetics, other species, etc.

Readings: *FF*, chapter 6

Kelman, "Cost-Benefit Analysis: An Ethical Critique"

[Arrow et al, "Is There a Role for Benefit-Cost Analysis in Environmental, Health, and Safety Regulation?"](#)

[Goulder and Stavins, "An eye on the future"](#)

January 22 Measuring benefits and costs

- Direct measures of benefits (damage reduction): treatment costs, lost production, etc.
- Indirect measures of willingness to pay for damage reduction: value of human life, labor and real estate markets
- Contingent valuation and existence value
- Measuring costs of abatement

Readings: *FF*, chapters 7-8

[Portney, "The Contingent Valuation Debate: Why Economists Should Care"](#)

III. Approaches to environmental policy

January 27 U.S. policy and "command and control"

- Policy alternatives
- Overview of U.S. environmental policy
- Environmental standards and "command and control"

Readings: *FF*, chapters 9, 11

PS, chapter 2

January 29 Decentralized policies and the Coase Theorem

- The Coase Theorem
- Property rights and transaction costs
- Limitations of the theorem

Readings: *FF*, chapter 10

Coase, "The Problem of Social Cost"

February 3 Incentive- or market-based regulation

- Taxes, charges, and subsidies
- Tradable permits
- Is it immoral to buy and sell the right to pollute?

Readings: *FF*, chapters 12-13

PS, chapter 3

Sandel, "It's Immoral to Buy the Right to Pollute"

February 5 Further issues in environmental policy

- The role of uncertainty
- Do environmental taxes yield a “double dividend”?
- Second-best analysis
- Is there a free lunch? Environmental regulation and technological innovation

Readings: [Porter and Linde, “Toward a New Conception of the Environment-Competitiveness Relationship](#)
[Palmer et al, “Tightening Environmental Standards: The Benefit-Cost or the No-Cost Paradigm?”](#)

IV. Environmental issues and policies in the United States: case studies

February 10 Air pollution

- Air pollution sources and trends
- U.S. air pollution policy: effects, cost-benefit analysis
- Alternative policy approaches

Readings: *PS*, chapter 4
[Klein, “Fencing the Airshed: Using Remote Sensing to Police Auto Emissions”](#)

February 12 **Midterm exam**

February 17 Water pollution and toxics

- Water pollution policy
- Toxic substances and hazardous wastes
- Pesticides and farming

Readings: *PS*, chapters 6-7

V. Global environmental issues

February 19-24 Global climate change and ozone depletion

- Science of global climate change
- Economics of global climate change
- Kyoto Protocol, Bush’s policy, etc.
- Ozone and the Montreal Protocol

Readings: [Karl and Trenberth, “Modern Global Climate Change”](#)
PS, chapter 5
[Goulder, “U.S. Climate-Change Policy: The Bush Administration’s Plan and Beyond”](#)

February 26 Biodiversity and endangered species

- Defining biodiversity
- Tradeoffs in habitat protection
- Endangered species policy

Readings: [Kareiva and Marvier, “Conserving Biodiversity Coldspots”](#)
[Brown and Shogren, “Economics of the Endangered Species Act”](#)

March 2 Oceans and fisheries

- State of the oceans
- Overfishing as a tragedy of the commons
- Policy alternatives

Readings: [Pew Oceans Commission, *Final Report*](#)
[Leal, "Homesteading the Oceans: The Case For Property Rights in U.S. Fisheries"](#)

March 4-9 Environmental economics in the developing world

- Developing countries: Is there an environmental Kuznets curve?
- Population, international migration, and the environment
- Environmental justice

Readings: *FF*, chapter 19
[Arrow, et al. "Economic Growth, Carrying Capacity, and the Environment"](#)
[Cohen, "Human Population: The Next Half Century"](#)

March 11 International trade and international environmental agreements

- Trade agreements and the environment: WTO, etc.
- Regulatory issues and the "race to the bottom"

Readings: *FF*, chapter 21