ENVIRONMENTAL ECONOMICS

Econ 8545
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Course Description

Environmental Economics (8545) considers the efficient and equitable use of society's scarce environmental resources. Environmental resources include; air, water, land, wilderness areas, parks, wildlife and genetic diversity, and other scarce ecological systems. Use of these resources will be considered from three perspectives: the market allocation, the optimal allocation, and government attempts to achieve a more efficient and equitable allocation. Environmental economics is a course in applied welfare economics and will consider externalities (particularly with respect to pollution) and the economic evaluation of amenities (recreational and environmental) in detail. Courses in environmental economics and natural resource economics both consider natural resources but differ in that natural resource courses have historically dealt with the intertemporal utilization of conventional renewable and nonrenewable natural resources such as fish, trees and minerals, whereas environmental courses have considered pollution and other environmental issues from a static perspective. This historical distinction is starting to blur.

Gory Details

There will be two exams; a midterm and a comprehensive final. The midterm will constitute 20% of your course grade and the final 40%, unless you do better on the final, in which case, the midterm will not count and the grade on the final will constitute 60% of your course grade. Review questions will be handed out for each section of the course. I strongly encourage you to write out answers to the review questions and discuss them with your classmates. You will want to form study groups.

There will be n quizzes during the term and your best (n-1) quiz scores will constitute 20% of your course grade. Use the review questions to study for the quizzes.

Some of the quizzes will be take-home and some will be group quizzes. I will tell you in advance if a quiz is a group quiz. The group will work together and just turn in one quiz. Everyone in the group will get the same grade for that quiz. Group quizzes are one of my ways of giving you an incentive to work and study together.

There will be a term paper (5-15 pages - no more) which will constitute 20% of your course grade. Either choose some environmental problem and evaluate it in economic terms or analyze some theoretical issue in economics that has particular relevance to environmental economics. Please discuss your paper topic with me before you write your paper.

My office hours will be from 3:15 to 4:45 on Tuesdays, from 4:00 to 5:30 on Thursdays and by appointment. My office is Econ 122. Please feel free to call my office (492-6898) or home (444-1054) to make appointments.

Prerequisites

Econ 6070 or Econ 7010 (or permission of the instructor). The more prior knowledge of the following topics, the better: environmental economics (e.g., Econ 4545), natural resource economics (e.g., Econ 4535), micro theory, welfare economics, calculus, and math economics (e.g., 4/5808).

Textbook


Most of the other readings are in a packet at Kinkos (CU# ).
ENVIRONMENTAL ECONOMICS

I. Welfare Economics: A Review

1. Morey, E.R., my welfare notes
2. Tietenberg, T., chapters 2, 3, and 4
   Chapter 2: Economics of the Environment: An Overview
   Chapter 3: Property Rights, Externalities and Environmental Problems
   Chapter 4: Regulating the Market: Information and Uncertainty
3. Freeman, A.M. Chapter 1: Benefit Measures and Environmental Decisionmaking
4. Read the appropriate chapters(s) in your graduate microtheory text on welfare economics and market failure. For example, in Varian this material is predominately in chapters 5 and 7.

II. Pollution and Externalities: An Introduction

1. Morey, E.R., my notes on a general equilibrium model of industrial pollution.

III. Externality Theory

The readings in this section relate how externality theory has evolved. Page (1973) and Mishan (1971) are reviews of the literature. Pigou is responsible for the "Pigouvian tax correction" for externalities. Coase (1960) argues that the "Pigouvian tax solution" is misguided. The debate continues. You will find these readings, brilliant, insightful, often confusing, sometimes wrong, and always thought provoking. The investment in this material is well worth the effort.

A. Pre-Coase

1. Pigou, A.C., Chapter 8, page 194 - the Road Example in the Economics of Welfare (1st edition)

B. Coase and After

IV. Pollution Policy in Practice

1. Tietenberg, T., chapter 14: Economics of Pollution Control: An Overview

A. Stationary Source Local Air Pollution

1. Tietenberg, T., chapter 15: Control of Stationary-Source Local Air Pollution

B. Regional and Global Air Pollutants

1. Tietenberg, T., chapter 16: Regional and Global Air Pollution: Acid Rain & Atmospheric Modification.

C. Mobile Source Air Pollution

1. Tietenberg, T., chapter 17: Control of Mobile Source Air Pollution.

D. Water Pollution

1. Tietenberg, T., chapter 18: Control of Water Pollution.

E. Toxic Waste

1. Tietenberg, T., chapter 19: Toxic Substances

F. Distributional Issues

V. The Evaluation of Recreational and Environmental Amenities

A. Consumer Surplus

1. Lecture notes on "Exact Consumer's Surplus Measures and Utility Theoretic Demand Systems: A Historical Review"
3. The chapters in your graduate micro text on consumer theory (particularly direct utility functions, indirect utility functions and expenditure functions) and consumer's surplus.
5. Freeman, A.M., preface and chapters 3 and 4.
   Chapter 3: The Concept of Benefits from Market Data
   Chapter 4: Measuring Benefits from Market Data

B. Recreational Demand and Benefits Estimation


C. Using Property Values and Labor Markets to Evaluate Environmental Amenities


D. Contingent Valuation

VI. The Dynamic Utilization of Scarce Ecological Resources

A. Soil Depletion, Desertification and Deforestation

1. McConnell, T.
2. Morey, E.R.

B. Extinction

1. Brown, G.