Course: Econ 3545

Environmental Economics

University of Colorado, Fall 1998
TR 8:00 - 9:15 A.M. @ Envd 120

Instructor:

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Course Introduction

This course introduces applications of economic principles for analyzing environmental issues. Initially the course develops basic frameworks of evaluating benefits and costs of environmental policies. The emphasis is on evaluating efficiency/cost effectiveness of policy alternatives. Besides efficiency, the course also looks at other criteria, such as incentives to innovate improved methods of pollution control and distributional impacts, for evaluating policies. The course also discusses some U.S. environmental policies and some international environmental issues. This course is designed for non-Econ majors; however, Econ 2010 is a prerequisite.

Textbook


Grading Policy

Grading would be based on the following:

Midterm 1: 20%
Midterm 2: 20%
Final exam: 40% (comprehensive)
Term Paper: 20%

Each student needs to write a term paper on a domestic or international environmental issue to demonstrate the student's understanding of economic principles for evaluation of environmental issues. The paper must be submitted by November 25, the day before the Thanksgiving. The paper must not be more than five 8"x11" pages, double spaced. Please note that there would be no makeup exam. If you miss a midterm, the weight of the missed midterm would be transferred to the next following exam.

Course Outline and Tentative Schedule

I. INTRODUCTION (Chapters 1 and 2) - Aug 25, 27, and Sep 1

A. Orientation
B. Economic approach to environmental issues
C. Kinds of issues and analyses covered in this course
D. The economy and the environment
E. Social choice between market goods and environmental quality
F. Terminology
G. Types of Pollutants

II. REVIEW OF MICROECONOMIC CONCEPTS (Chapters 3 and 4) - Sep 3, 9, and 10
A. Demand and Willingness to Pay
B. Supply and Opportunity Cost of Producing
C. Private and Social Costs
D. The Equimarginal Principle
E. Economic Efficiency and Equity
F. Performance of Market in the Presence of Environmental Externalities

III. A SIMPLE MODEL OF POLLUTION CONTROL (Chapter 5) - Sep 15 and 17
A. Tasks
B. Damage Function
C. Abatement Cost Function
D. Efficient Level of Emission and Allocation of Emission Reductions

IV. FRAMEWORKS OF ANALYSIS (Chapter 6) - Sep 17 and 22
A. Impact Analysis
B. Cost-Effectiveness Analysis
C. Damage Assessment
D. Benefit-Cost Analysis
E. Risk Analysis

MIDTERM 1 : SEPTEMBER 24 (THURSDAY)
V. TECHNIQUES OF BENEFIT ESTIMATION (Chapter 7) - Nov 29, Oct 1 and 6

A. Willingness to Pay

B. Two Broad Types of Techniques

C. Indirect Methods of Determining Willingness to Pay

D. Direct Method of Determining Willingness to Pay (Contingent Valuation Method)

E. Problems in Benefit Estimation

VI. TECHNIQUES OF COST ESTIMATION (Chapter 8) - Oct 8 and 13

A. General Approach

B. Estimation of Costs of an Environmental Project

C. Estimation of Costs of a Local Environmental Regulation

D. Estimation of Costs of Emission Reduction in an Industry

E. Estimation of Costs of Nationwide Emission Regulations

F. Problems in Cost Estimation

VII. ENVIRONMENTAL POLICY APPROACHES AND EVALUATION CRITERIA (Chapter 9) - Oct 15, 20

A. Policy Approaches

B. Evaluation criteria

C. Efficiency/ Cost Effectiveness

D. Equity (Fairness)

E. Incentives for Long-Run Improvements

F. Enforceability

G. Moral Considerations

H. Possibility of Government Failure

VIII. DECENTRALIZED ENVIRONMENTAL POLICIES (Chapter 10) - Oct 22 and 27

A. Rationale
B. Types
C. Liability laws
D. Property rights
E. Moral suasion

IX. COMMAND-AND-CONTROL POLICIES (Chapter 11) - Oct 29 and Nov 3
   A. Rationale
   B. Types
   C. Issues

MIDTERM 2: NOVEMBER 5 (THURSDAY)

X. EMISSION CHARGES (Chapter 12) - Nov 10 and 12
   A. Rationale
   B. Modus Operandi
   C. The economics of charge
   D. Level of charge and efficiency
   E. Incentives to innovate
   F. Enforceability
   G. Distributional impacts
   H. Issues
   I. Emission subsidies
   J. Deposit-refund systems

XI. TRANSFERABLE DISCHARGE PERMITS (Chapter 13) - Nov 17 and 19
   A. Rationale
   B. Modus Operandi
   C. The Economics of Permits
   D. Efficiency
E. Incentive for R&D
F. Enforceability
G. Issues

XII. SOME FEDERAL ENVIRONMENTAL POLICIES (Chapters 14 and 15) - Nov 24 and Dec 1

A. Technology-Based Effluent Standards for Water and Air Pollution Control
B. Fox River (Wisconsin) Emission Permits
C. Emission Reduction Credits Program for Air Pollution
D. Transferable Emission Permit Plan for Power Plants

XIII. SOME INTERNATIONAL ENVIRONMENTAL ISSUES - Dec 3 and 8

FINAL EXAM: DECEMBER 12 (SATURDAY), 7:30-10:30 A.M.