

This course applies economic analysis to a number of environmental problems, including both a theoretical analysis of the optimal solution(s) to the problem and a practical analysis of how the problem has (or hasn't) been solved in different settings. Topics covered in the course include benefit-cost analysis, economic methods for valuing environmental goods and services, the optimal management of renewable, non-renewable, and common-property resources, pollution regulation, and sustainable development. The course concludes with an extended case study on proposed government regulations on timber harvesting, with negotiations between seven 'interest groups'.

Textbook: Environmental Economics and Policy, Tom Tietenberg, 2004 (4th edition).

Office Hours: Monday 3:00-4:00, Tuesday 3:00-4:00, Thurs 10:30-11:00

Grading:

- 25% each for two in-class exams (Sept. 20 and Nov. 2 – no final exam)
- 30% for group case study (position statement-negotiations-presentations-final paper)
- 20% for weekly quizzes (nearly every Tuesday, at the start of class)

Outline of Topics (n)=chapter in Tietenberg

I. Introduction to Economics and the Environment (5 classes)

A. Optimism and Pessimism (1). What are the differences in the assumptions and the conclusions of the optimistic and pessimistic models?

B. Supply and Demand (2). What factors influence the decisions of buyers and sellers, how does 'the market' work to provide goods, and how are supply and demand curves related to the benefits and costs of goods? How can this be applied to environmental topics?

C. Benefit-Cost Analysis (3). How do economists measure benefits and costs, especially for environmental goods and bads? What are the hedonic estimation, travel-cost valuation, and contingent valuation methods? How does cost-effectiveness analysis compare to benefit-cost analysis? Why is the discount rate important for these analyses?

D. Externalities and Sustainability (4-5). How does the existence of pollution (or some other externality) affect the 'optimality' of market allocations? Why are property rights more complicated in this case? What makes environmental quality a 'public good', and why does this affect the decision about how much environmental quality to provide? How does the distribution of regulatory benefits and costs (across different regions of the country, between consumers and producers) influence the political support for regulation, and changes in regulation? What is sustainability and (why) does it matter?

II. Economics of Pollution Regulation (7 classes)

A. Regulatory Methods (13). What sort of regulatory tools could be used to control pollution (regulatory standards, emission charges, marketable permits), and how do they compare with each other in theory? What tools are actually used in different countries to control pollution, and how well do they work in practice?

B. Stationary-Source Local Air Pollution (14). How do new and old local air pollution concerns differ (coal fires in London vs. oil refineries in Los Angeles)? How well does command-and-control regulation operate in this area? What alternative regulatory mechanisms have been used?

C. Acid Rain and Atmospheric Modification (15). What causes acid rain, and how has the U.S. used an allowance trading system to reduce it? What attempts have been made to reduce emissions related to global warming, and why are these emissions difficult to regulate?

<exam 1>

D. Transportation (16). What externalities are associated with automobiles? How has the U.S. used technology-forcing standards to reduce mobile-source emissions? What alternative regulatory methods exist (fuel taxes, peak-hour pricing)?

E. Solid Waste and Recycling (18). What incentives have been provided for reducing solid waste (bottle bill, recycling programs, mandatory take-backs, trash pricing)? When is obsolescence efficient (or inefficient)?

F. Toxic Substances and Hazardous Waste (19). How big are the benefits and costs of toxic waste cleanup? How does Superfund help clean up toxic waste sites in the U.S.? What legal mechanisms are used in different countries to fund cleanups?

III. Economics of Natural Resources (5 classes)

A. Natural Resource Economics (7). How should non-renewable resources be used (and valued) over time? How should renewable resources be managed over time? How does theoretically optimum allocation compare with actual allocations, government interventions?

B. Water (9). How should groundwater and surface water be allocated efficiently? What allocation methods are used in practice (riparian, prior appropriation, international issues)?

C. Biodiversity I: Forest Habitat (11). What constitutes profit-maximizing forest management? What factors influence deforestation decisions in developed and developing countries?

D. Biodiversity II: Commercially Valuable Species (12). What government policies or market structures result in efficient (or inefficient) harvesting in fisheries (transferable quotas vs. size and effort restrictions)? What alternative policies have been used to control poaching?

<exam 2>

IV. Group Case Study – Revision of Maine’s Clearcutting Regulations (8 classes, including in-class negotiations and presentations; with class split into seven ‘interest groups’)