Course Syllabus

Course Information

ECO 4336

ENVIRONMENTAL ECONOMIC THEORY AND POLICY

Professor Contact Information

Professor L.J. Dumas
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Office Hours:
Monday 4:00P-6:00P, and by appointment

Course Pre-requisites, Co-requisites, and/or Other Restrictions

ECO 2302 or instructor's permission.

Course Description

Both economics and ecology aim at understanding the functioning of highly interconnected systems in which tradeoffs among objectives are unavoidable. Environmental economics brings them together to study the ecological implications of economic growth and development, and to utilize the tools of economic theory to analyze ecological problems and suggest solutions that are efficient as well as effective

Student Learning Objectives/Outcomes

Understand the economic benefits conveyed by the natural environment and the constraints that the ecology places on economic activity.

Learn specific techniques for determining the economic value of the services provided by the natural environment, and thus of environmental assets.

Apply economic cost-benefit analysis to environmental issues.

Raise moral and ethical issues in intergenerational equity and the determination of the social good relevant to the environmental impact of economic activity.

Required Textbooks and Materials

Environmental and Natural Resource Economics: A Contemporary Approach, by Jonathan M. Harris and Brian Roach (Armonk, NY: M.E. Sharpe; 3rd edition, 2013)

Suggested Course Materials (Strongly Recommended)

Gaviotas: A Village to Reinvent the World, Alan Weisman (Chelsea Green Publishing Company, 1998)

Assignments

I) Introduction:

Defining ecology, economics and their intersection; conventional economics vs. ecological economics; the economic valuation approach; environmental microeconomics and macroeconomics; Commoner's Laws of ecology; dilution as a solution to pollution.

TEXT: Chapter 1 - Changing Perspectives on the Environment

II) Economic Growth and Environmental Deterioration:

Economic growth, economic development and the quality of life; the benefits and costs of economic activity; natural capital and human-made capital; measuring economic progress; resource depletion; ecological implications population growth and change in the nature of products and processes; limits to growth.

TEXT: Chapter 2 – Resources, Environment and Economic Development
Chapter 7 – Ecological Economics: Basic Concepts
Chapter 8 – National Income and Environmental Accounting

III) Economic Analysis of Environmental Issues:

A) Environmental Ethics and Welfare Economics:

The concept of utility; normative ethical theories; environmental ethics; social decision-making and the pareto, Bentham and "Hicks-Kaldor compensation" criteria.

READING:
Environmental Economics and Natural Resource Management, David A Anderson (Southwestern Publishers, 2004), Chapter 5 – Morals and Motivation

B) Collective (Public) Goods:

The difference between private goods and collective (public) goods; deriving market demand curves for collective goods; property rights; the global commons.

TEXT: Chapter 4 – Common-Property Resources and Public Goods

C) Externalities:

External costs; external benefits; pecuniary and non-pecuniary environmental externalities; divergent private and social benefits/costs as causes of "market failure"; the Coase theorem; the "free rider" problem; internalizing externalities.

TEXT: Chapter 3 – The Theory of Environmental Externalities

D) Economic Analysis of Environmental Decision Making:

Time allocation of depletable resources; Hotelling's rule; cost-benefit analysis; estimating environmental costs and benefits; dealing with risk and uncertainty.

TEXT: Chapter 5 – Resource Allocation Over Time
Chapter 6 – Valuing the Environment

IV) Economics and Pollution Control:

How much pollution is too much; marginal costs and benefits of pollution control; the "optimal" level of pollution; pollution control policies; achieving the optimal level of pollution.

TEXT: Chapter 16 – Pollution: Analysis and Policy

V) Energy, Ecology and Economics:

Energy and economic systems; engineering efficiency vs. economic efficiency; energy trends and projections; alternative energy sources; recycling; energy conservation as a response to the joint problems of energy and ecology.

READING:

The Conservation Response: Strategies for the Design and Operation of Energy-Using Systems, Lloyd J. Dumas (Lexington, Massachusetts: D.C. Heath and Company, 1976)

Chapter 1–Energy Conservation: Possibilities, Limits, Benefits
***** Chapter 2-Building Design and Energy Consumption
***** Chapter 5-Transportation and Energy
***** Chapter 9-Industrial Products and Processes
Chapter 11-The Conservation Response: An Overview

TEXT: Chapter 11 – Nonrenewable Resources: Scarcity and Abundance
Chapter 12 – Energy: The Great Transition

VI) Crucial Environmental Issues and New Perspectives:

The "greenhouse effect"; implications of and policy responses to global climate change; "globalization", the World Trade Organization and the environment; NAFTA and the environment; industrial ecology: mimicking the cycles of nature; sustainable development.

TEXT: Chapter 18 – Global Climate Change
Chapter 19 – Global Climate Change: Policy Responses
Chapter 20 – World Trade and the Environment
Chapter 17 – Greening the Economy (especially section on Industrial Ecology)
Chapter 20 – Institutions for Sustainable Development

READINGS:

"Understanding the Challenge of Global Warming", L.J. Dumas in Twenty-First Century Macroeconomics: Responding to the Climate Challenge, ed. by Neva Goodwin and Jonathan Harris (Northampton, MA: Edward Elgar Publishers, 2008); see also online at http://www.civilsocietyinstitute.org/reports/GEGWS-DumasChapter.pdf

Gaviotas: A Village to Reinvent the World, Alan Weisman (Chelsea Green Publishing Company, 1998)

Entering the 21st Century: World Development Report 1999/2000, World Bank (New York: Oxford University Press, 2000), Chapter 4 - Protecting the Global Commons

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Grading Policy

Grading is based on two in-class, closed book exams. Each exam counts 50% of the grade. There is no graded homework and there are no required papers. Since the exams are based heavily on the material discussed in class, it will be very difficult to perform well on the exams if class attendance is poor. If your grade based on the two exams is on the boundary between two grades, good participation in class can push you to the higher grade. There is no separate penalty for poor attendance.

Course & Instructor Policies

Make-up exams will be allowed in extraordinary and unavoidable situations only. The student is required to get prior approval from the Professor. A make-up exam will typically be given in oral format at the office of the Professor, at time determined by mutual consent. There will be no special assignments and there will be no extra credit for attendance.

These descriptions and timelines are subject to change at the discretion of the Professor.