

**SOUTHEAST MISSOURI STATE UNIVERSITY
COURSE SYLLABUS**

Department of Economics

Course No: EC344

Title of Course: Environmental Economics

New: August 1999

I. Catalog Description and Credit Hours of Course

Application of economic theory to problems faced by environmental managers and policy makers. (three credit hours)

II. Prerequisites

MA134 College Algebra

One of the following:

- EC101 Economic Problems and Policies
- EC215 Principles of Microeconomics

III. Purposes or Objectives of the Course

Upon completion of the course, a student should be able to:

- A. Understand the nature and causes of environmental problems from an economic perspective.
- B. Develop the means for evaluating the tradeoffs associated with the array of proposed policy prescriptions to environmental problems.
- C. Integrate ecological knowledge with the principles and techniques of economics to evaluate environmental problems and policies in order to improve the general welfare of society.
- D. Display the research and communication skills necessary for an effective evaluation of the tradeoffs inherent with environmental problems.

IV. Expectations of students.

- A. Satisfactory completion of assignments and performance on exams.
- B. Full participation in team projects and class discussion.
- C. It is anticipated that the average student will spend two hours outside of class studying for every hour in class.

V. Course Outline (Class Periods)

- A. Scarcity, Opportunity Cost and the Environment (2)
 - 1. The Thermodynamic Law of Entropy
 - 2. Natural Resources
 - 3. Reversible vs. Irreversible Use

- B. Theories of Value for Environmental Amenities and Disamenities (2)
 - 1. The Physiocrats
 - 2. The Mercantilists
 - 3. The Classical School
 - 4. Other theories

- C. Institutions of Choice for the Environment (2)
 - 1. Private Property Rights and Market Mechanisms
 - 2. Government Command and Control
 - 3. Custom and tradition and other social institutions

- D. Private Market Efficiency (4)
 - 1. Allocative Efficiency and the Role of Prices as Signals
 - 2. Technical Efficiency-
 - 3. Optimal Extraction of Nonrenewable Resources
 - 4. Economic Growth and the Environment
 - a. Capital Markets and Intergenerational Allocation of Resources
 - b. The income elasticity of demand for environmental amenities
 - c. Why income is not a measure of social welfare
 - d. Sustainable Economies

- E. Social Efficiency (8)
 - 1. The Social Welfare Function
 - a. Rawlsian vs. Utilitarian Social Welfare Functions
 - b. Intermediate Social Welfare Functions-Welfare weights
 - 2. Using the Social Welfare Function to evaluate:
 - a. Externalities
 - i. Positive externalities-
 - ii. Negative Externalities-
 - b. Public Goods-Environmental Amenities and Disamenities
 - c. Common Property Resources
 - i. Fisheries
 - ii. Oil Pools
 - iii. Aquifers
 - iv. Wildlife
 - d. Income distribution and the environment

- i. Siting of landfills
 - ii. Siting of toxic waste dumps
 - iii. The effects of pollution

- F. The Design of Environmental Policy (4)
 - 1. Pigovian Taxes and Subsidies to Correct for Externalities
 - 2. Establishing Property Rights in Common Property Resources-Marketable Emission Permits
 - 3. Regulation and Incentives
 - a. Price vs. quantity controls
 - b. Getting the signal right
 - 4. Highest and Best Use-Henry George and the Single Tax on Land
 - 5. The Coase Theorem-A Private Solution

- G. Government Failure (3)
 - 1. Bureaucratic Incentives
 - 2. The Problem of Truthful Revelation of Preferences
 - 3. The Democratization of Privilege

- H. Cost-Benefit Analysis (8)
 - 1. Criteria for social investment
 - 2. Valuing Environmental Amenities and Disamenities
 - a. Hedonic techniques
 - b. Contingent valuation methods
 - c. Money metric measures of consumer surplus
 - d. Property capitalization approach
 - 3. Costs of Environmental Amenities and Disamenities
 - a. The lack of free disposability
 - b. Reversible vs. irreversible resource use
 - 4. Choice of the appropriate social discount rate
 - 5. Welfare weights for distributional considerations
 - 6. Risk vs. uncertainty

- I. Applications-to be determined by the instructor and class interests (12)
 - 1. Population
 - 2. Renewable Resources-Forests, Fisheries, Wildlife, Agriculture
 - 3. Nonrenewable Resources-Oil, Gas, Coal, Uranium
 - 4. Recycling
 - 5. Pollution-Air and Water
 - 6. Global Warming
 - 7. Ozone Depletion

VI. Textbook and/or Other Required Materials

Kahn, James R. *The Economic Approach to Environmental and Natural Resources*, 2nd edition, Harcourt, Brace, Jovanovich, 2000/2001

VII. Basis for Student Evaluation

The evaluation of students will be based on:

- A. Performance on examinations
- B. Quality of research paper
- C. Class participation