

Environmental Economics

Environmental and Business Economics Curriculum

*School of Environmental and Biological Sciences, Rutgers, The State University of New Jersey
(11:373:363, 3 credit)*

Professor:

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Office hours:

Thursday, 2:10 to 3:10

Lectures: *TBA.*

During severe weather conditions, class cancellation information is available on the recorded message system at (732) 932-7799, or by following links at the Rutgers web site, www.rutgers.edu.

Learning Goals:

By the end of this course, you should be able to:

1. Plan environmental and natural resource decisions (including conservation, development, preservation, and restoration) to accomplish objectives that can be stated in economic terms; these include objectives of individuals, groups, nations, and groups of nations.
2. Understand the most common economic causes of environmental and resource policy problems.
3. Diagnose potential environmental and resource policy problems and understand the major economic policy instruments used to correct these problems in market economies.
4. Apply economic logic to environmental and resource issues at scales ranging from individual users and development projects to national income accounts, national policies, and international agreements.

5. Extend the concepts we discuss in class to help you understand new environmental and resource contexts, and (if you need to) develop and analyze new policies.

Course Policies:

A. Class Participation

This is a participatory class; while in class, you will frequently be asked during class discussions to (i) offer your opinions about the realism of major assumptions and (ii) draw on your personal experience to offer insight into the logical steps required to arrive at key conclusions. (These responsibilities are much easier to meet if you have done the reading ahead of time.)

B. Required Readings

Our discussions will draw upon an intermediate knowledge of microeconomics. To help you integrate environmental economics with your prior knowledge of economics as quickly as possible, lectures have been prepared presuming you are familiar with the content of required readings before arriving in class. Each required reading within a subject area will be indicated with an asterisk (*); read this before we begin to discuss the listed topic.

C. Other Related Readings

This syllabus has been prepared to serve not only as a guide to the course, but also to give you some exposure to literature in environmental and resource economics. For this reason, this syllabus includes some examples of recent published research from major publishers and journals. The citations are not intended to be an exhaustive list. They have been included to give you examples of influential or representative approaches and to help you gain more from our class discussions. Lectures will frequently make references to related material, but it will never be presumed that you have read any of the other related readings (in contrast to required readings, above). If you are interested in representative articles on subjects other than those listed in the syllabus, please contact me and I will attempt to provide you with additional citations.

D. Lecture Strategy

The lectures will use the readings as starting points, but will contain references to other readings, empirical results, syntheses of trends in the literature, and discussion of key points from the other relevant readings. Missing a lecture will cost you understanding and perhaps a key inspiration you are seeking. We have roughly thirty hours together.

E. Rutgers University Policies

All faculty, staff, and students at our University are bound by University policies. All aspects of this course will be conducted according to these policies. (Please see p10 for additional information.)

Texts:

This text has been ordered for our class. Whether you purchase it is up to you; however, it is a widely accepted standard reference for our field, and would be a worthwhile addition to your personal library.

Other books with which you may want to be acquainted include:

Field, B.C. and M.K. Field. 2008. *Environmental Economics: An Introduction*. Fifth Edition. Boston: McGraw-Hill. ISBN 0073375764. This introductory book typically gives a well-organized, non-mathematical treatment; his discussions are well stocked with examples and graphs. Earlier editions have very similar content.

Hartwick, J.M. and N.E. Olewiler. 1997. *The Economics of Natural Resource Use*. Second Edition. New York: Harper and Row Publishers. A good book that is intermediate between Tietenberg and the Cambridge press group. The focus is primarily on resources; pollution externalities are introduced late in the text.

Baumol, W.J. and W.E. Oates. 1988. *The Theory of Environmental Policy*. Second Edition. New York: Cambridge University Press. An accessible book on important considerations for policies intended to correct for externalities (e.g. emissions, effluent) should be designed.

Costanza, R. (ed.) 1991. *Ecological Economics: The Science and Management of Sustainability*. New York: Columbia University Press. A collection of contributed chapters on what has become a major area of worldwide interest. Includes overviews, methods, and case studies.

Dixon, J.A. and P.B. Sherman. 1990. *Economics of Protected Areas: A New Look at Benefits and Costs*. Washington, DC: Island Press. This text combines conceptual chapters with case studies drawn from outside the US. The level of economics is introductory, similar to Tietenberg.

Dorfman, R. and N.S. Dorfman (eds.) 1993. *Economics of the Environment: Selected Readings*. New York: W.W. Norton and Company. An excellent collection of classic and modern articles. Includes many of the most influential articles written in environmental and natural resource economics.

Freeman, A.M. III. 1993. *The Measurement of Environmental and Resource Values: Theory and Methods*. Washington: Resources for the Future. A comprehensive overview of microeconomic foundations and key applications of valuation. Empirical references are contained in footnotes.

Neher, P.A. 1991. *Natural Resource Economics: Conservation and Exploitation*. New York: Cambridge University Press. The breadth of coverage in this text is quite good, and includes amenities from natural environments.

James A. Fay and Dan S. Golomb. 2012. *Energy and the environment*. Oxford University Press, Second edition.

Lecture/Discussion Schedule:

Basic Principles of Environmental and Resource Economics

(Quiz 1 and 2)

Field and Field. "What is Environmental Economics?" In *Environmental Economics: An Introduction*. Fifth Edition. New York: Irwin/McGraw-Hill.

*Field and Field. "The Economy and the Environment" In *Environmental Economics: An Introduction*. Fifth Edition. New York: Irwin/McGraw-Hill.

U.S. Environmental Protection Agency. 2000. Introduction. In *Guidelines for Preparing Economic Analyses*. EPA 240-R-00-003. Washington: U.S. Environmental Protection, Office of the Administrator. September 2000.

U.S. Environmental Protection Agency. 2000. Statutory and Executive Order Requirements for Conducting Economic Analyses. In *Guidelines for Preparing Economic Analyses*. EPA 240-R-00-003. Washington: U.S. Environmental Protection, Office of the Administrator. September 2000.

U.S. Environmental Protection Agency. 2000. Using Economic Analyses in Decision Making. In *Guidelines for Preparing Economic Analyses*. EPA 240-R-00-003. Washington: U.S. Environmental Protection, Office of the Administrator. September 2000.

Property Rights, Externalities and Environmental Problems

(Quiz 3 and 4)

*Field and Field. "Benefits and Costs, Supply and Demand" In *Environmental Economics: An Introduction*. Fifth Edition. New York: Irwin/McGraw-Hill.

*Field and Field. "Economic Efficiency and Markets" In *Environmental Economics: An Introduction*. Fifth Edition. New York: Irwin/McGraw-Hill.

*Field and Field. "The Economics of Environmental Quality" In *Environmental Economics: An Introduction*. Fifth Edition. New York: Irwin/McGraw-Hill.

U.S. Environmental Protection Agency. 2001. The Cost Effectiveness and Environmental Effects of Incentive Systems. In *The U.S. Experience with Economic Incentives for Protecting the Environment*. EPA 240-R-01-001. Washington: U.S. Environmental Protection, Office of the Administrator. January 2001.

U.S. Environmental Protection Agency. 2000. Analysis of Social Discounting. In *Guidelines for Preparing Economic Analyses*. EPA 240-R-00-003. Washington: U.S. Environmental Protection, Office of the Administrator. September 2000.

U.S. Environmental Protection Agency. 2000. Distributional Analyses: Economic Impact Analyses and Equity Assessments. In *Guidelines for Preparing Economic Analyses*. EPA 240-R-00-003. Washington: U.S. Environmental Protection, Office of the Administrator. September 2000.

U.S. Environmental Protection Agency. 2000. Distributional Analyses: Economic Impact Analyses and Equity Assessments. In *Guidelines for Preparing Economic Analyses*. EPA 240-R-00-003. Washington: U.S. Environmental Protection, Office of the Administrator. September 2000.

Review session

Second Midterm Exam

Evaluating Environmental Policies

(Quiz 5 and 6)

*Field and Field. "Criteria for Evaluating Environmental Policies" In *Environmental Economics: An Introduction*. Fifth Edition. New York: Irwin/McGraw-Hill.

*Field and Field. "Decentralized Policies" In *Environmental Economics: An Introduction*. Fifth Edition. New York: Irwin/McGraw-Hill.

U.S. Environmental Protection Agency. 2001. Liability Approaches. In *The U.S. Experience with Economic Incentives for Protecting the Environment*. EPA 240-R-01-001. Washington: U.S. Environmental Protection, Office of the Administrator. January 2001.

U.S. Environmental Protection Agency. 2001. Information Disclosure. In *The U.S. Experience with Economic Incentives for Protecting the Environment*. EPA 240-R-01-001. Washington: U.S. Environmental Protection, Office of the Administrator. January 2001.

U.S. Environmental Protection Agency. 2001. Voluntary Programs. In *The U.S. Experience with Economic Incentives for Protecting the Environment*. EPA 240-R-01-001. Washington: U.S. Environmental Protection, Office of the Administrator. January 2001.

*Field and Field. "Command-and-Control Policies: The Case of Standards" In *Environmental Economics: An Introduction*. Fifth Edition. New York: Irwin/McGraw-Hill.

Market-Based Environmental Policies

(Quiz 7)

U.S. Environmental Protection Agency. 2001. Government Policy on Economic Incentives. In *The U.S. Experience with Economic Incentives for Protecting the Environment*. EPA 240-R-01-001. Washington: U.S. Environmental Protection, Office of the Administrator. January 2001.

*Field and Field. "Incentive-Based Strategies: Emission Taxes and Subsidies" In *Environmental Economics: An Introduction*. Fifth Edition. New York: Irwin/McGraw-Hill.

U.S. Environmental Protection Agency. 2001. Pollution Charges, Fees, and Taxes. In The U.S. Experience with Economic Incentives for Protecting the Environment. EPA 240-R-01-001. Washington: U.S. Environmental Protection, Office of the Administrator. January 2001.

U.S. Environmental Protection Agency. 2001. Subsidies for Emission Control. In The U.S. Experience with Economic Incentives for Protecting the Environment. EPA 240-R-01-001. Washington: U.S. Environmental Protection, Office of the Administrator. January 2001.

*Field and Field. "Incentive-Based Strategies: Transferable Discharge Permits" In Environmental Economics: An Introduction. Fifth Edition. New York: Irwin/McGraw-Hill.

U.S. Environmental Protection Agency. 2001. Trading Programs. In The U.S. Experience with Economic Incentives for Protecting the Environment. EPA 240-R-01-001. Washington: U.S. Environmental Protection, Office of the Administrator. January 2001.

Federal Water Pollution Control Policy

(Quiz 8)

*Field and Field. "Federal Water Pollution Control Policy" In Environmental Economics: An Introduction. Fifth Edition. New York: Irwin/McGraw-Hill.

U.S. Environmental Protection Agency. 2001. Water Fees. In The U.S. Experience with Economic Incentives for Protecting the Environment. EPA 240-R-01-001. Washington: U.S. Environmental Protection, Office of the Administrator. January 2001.

U.S. Environmental Protection Agency. 2001. Effluent Trading. In The U.S. Experience with Economic Incentives for Protecting the Environment. EPA 240-R-01-001. Washington: U.S. Environmental Protection, Office of the Administrator. January 2001.

Environment. EPA 240-R-01-001. Washington: U.S. Environmental Protection, Office of the Administrator. January 2001.

U.S. Environmental Protection Agency. 2001. Effluent Trading. In The U.S. Experience with Economic Incentives for Protecting the Environment. EPA 240-R-01-001. Washington: U.S. Environmental Protection, Office of the Administrator. January 2001.

Federal Air Pollution Control Policy

*Field and Field. "Federal Air Pollution Control Policy" In Environmental Economics: An Introduction. Fifth Edition. New York: Irwin/McGraw-Hill.

U.S. Environmental Protection Agency. 2001. Air Emission Fees. In The U.S. Experience with Economic Incentives for Protecting the Environment. EPA 240-R-01-001. Washington: U.S. Environmental Protection, Office of the Administrator. January 2001.

U.S. Environmental Protection Agency. 2001. Trading Programs. In The U.S. Experience with Economic Incentives for Protecting the Environment. EPA 240-R-01-001. Washington: U.S. Environmental Protection, Office of the Administrator. January 2001.

U.S. Environmental Protection Agency. 2001. Alternative Fuels and Low Emitting Vehicles. In The U.S. Experience with Economic Incentives for Protecting the Environment. EPA 240-R-01-001. Washington: U.S. Environmental Protection, Office of the Administrator. January 2001.

Federal Policy on Toxic and Hazardous Substances

*Field and Field. "Federal Policy on Toxic and Hazardous Substances" In Environmental Economics: An Introduction. Fifth Edition. New York: Irwin/McGraw-Hill.

U.S. Environmental Protection Agency. 2001. Liability Approaches. In The U.S. Experience with Economic Incentives for Protecting the Environment. EPA 240-R-01-001. Washington: U.S. Environmental Protection, Office of the Administrator. January 2001.

Summary and Review of Case Studies

Second Midterm Exam

Grading Policies:

9% Instructor's Discretion

21% Weekly Quizzes

40% Midterm Exams (2)

30% Term paper

100% Total

Weekly Quizzes

The course includes ten general topic areas. A short quiz will be given in class each week based on concepts discussed in class and problem sets. Only eight quizzes will be counted toward your grade, so you can drop up to two quizzes for any reason. No makeup quizzes will be offered without written medical, religious, or legal documentation. Quizzes missed for documented medical, religious, or legal reasons must be made up within one week of returning to class.

Term paper

The term paper should be 10-15 pages long, and should address environmental issues. It should provide an economic perspective and follow the format of a policy memo. The paper is to be handed in before Thanksgiving and no extensions given.

Letter Grade Assignments:

At any time you may calculate your grade in this course. There is a total of 100 points possible (see above). Final grades will be assigned using the scale given below. To calculate your expected final grade, simply add the grades from your completed exams with the grades you plan to get on forthcoming exams and refer to the table below.

90+ A

85+ B+

80+ B

75+ C+

70+ C

60+ D

60- F

Rutgers University Policies:

A typical reference for Rutgers University policies that will be used in the conduct of this course is pp. 492-500 in

Rutgers, The State University of New Jersey, Campus at New Brunswick. New Brunswick Undergraduate Catalog. 1997-1999. New Brunswick.

All sections of this discussion on policy are of vital importance to you as a Rutgers University student; however for the purposes of this course, please pay particular attention to sections on Registration, Attendance, Nondiscrimination, Policy Against Insult, Defamation, and Harassment, Sexual Harassment, Administrative Policy for Responding to Disruptions, Academic Integrity, and the University Student Disciplinary Hearing Procedure.

Should you have any questions about Rutgers University policies, please contact the personnel listed in the current Undergraduate Catalog.