
Economics 231
Colby College
Fall, 2007
Office Hours: T WTh 2:30-4:00 (or by appointment)

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INTRODUCTION TO ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS

The following book will be extensively used in the course and is recommended for purchase:

Tietenberg, T. 2006. *Environmental and Natural Resource Economics*, 7th ed. Reading, MA: Addison-Wesley Longman. (TT)

The companion web site for this text can be found at: http://wps.aw.com/aw_tietenberg_envnatrese_7/. At that location you can find hyperlinked web sites of general interest in environmental economics, chapter-specific web sites of interest, web data sources and chapter-specific historic and current references to the relevant literature.

Notice that this text also contains an extensive **glossary of terms** in the back as well as **answers to the problems** in each chapter. If you find a term that you think should be in the glossary, but is not, or find any typos, I would appreciate it if you would let me know. I'll make corrections in the next edition.

In addition to containing the syllabus, the Colby web site for this course also contains some **key concept listings** to facilitate studying for the exams as well as **practice exams**. These can be found at <http://www.colby.edu/economics/faculty/thtieten/ec231/ec231tietenberg.htm>.

Further reading on any topic you wish to pursue further is not difficult to find. A number of journals are devoted either exclusively or mostly to the topics covered in this course. One, *Ecological Economics*, is dedicated to bringing economists and ecologists closer together in a common search for appropriate solutions for environmental challenges. Interested readers can also find advanced work in the field in journals such as *Land Economics*, *Journal of Environmental Economics and Management*, *Environmental and Resource Economics*, *Environment and Development Economics*, *Resource and Energy Economics* and *Natural Resources Journal*, among others.

New resources for student research projects have been made available in response to the growing popularity of the field. Original research on topics related to international environmental and natural resource issues was formerly very difficult because of the paucity of data. A number of good sources now exist. *Earth Trends*, published by the World Resources Institute in Washington, DC at <http://earthtrends.wri.org> is an extensive online database of environmental, economic and social trends that is updated periodically. The World Bank also makes a large amount of data available on the web at <http://www.worldbank.org/data/>.

The Internet is an excellent source for information on environmental economics in general. A good location to begin is the web site <http://www.aere.org/> sponsored by the Association of Environmental and Resource Economists. This site has information on graduate programs in the field and a series of pointers to other good internet sources of information on subjects related to the focus of this course. Another useful web site constructed by the National Center for Environmental Economics at the USEPA <http://yosemite.epa.gov/ee/epa/eed.nsf/pages/homepage>. A website and blog dedicated to accessible writings on environment and natural resource issues written by economists can be found at <http://www.env-econ.net/>.

My research web site can be found at <http://www.colby.edu/~thtieten/> The sustainable development link on this site offers three types of information: (1) a bibliography of works emphasizing economics and sustainable development, (2) a series of "executive summaries" of case studies involving attempts to pursue sustainable strategies written by Colby seniors, and (3) links to other sustainable development sites.

The course grade for the three credits will be based on two evening examinations lasting fifty minutes each and a two-hour final examination. These will be weighted 30%, 30%, and 40% respectively. A fourth credit option, involving a 15-20 page research paper, is available for a limited number of participants in the course on a first-come, first-served basis. **Choosing this option requires the submission of a topic proposal and research design by Friday, October 12th and the submission of the completed paper by the last day of classes, Friday, December 7th. Late papers are assessed a late penalty of 3 points**

per day. Grading for those with approved topics will be 25% for each of the evening exams, 30% for the final and 20% for the paper.

Students are expected to attend all classes and exams and are responsible for any work missed. Unexcused absences can lead to a warning, grading penalties or even dismissal from the course in the (hopefully extremely unlikely) event of a flagrant disregard for this policy.

Students may be excused from classes for critical emergencies (normally verified by the Dean of Students Office), athletic or organizational trips, or illness (normally verified by the College Health Center), though I should be notified by the absence in advance. Students who have an excused absence from one of the evening exams must take the regularly schedule make up (during the regular class period in the regular class room the next day). According to college rules students on academic probation cannot be excused from any class because of extracurricular or athletic activities. It is your responsibility to communicate promptly and directly with me if you are going to miss class to assure that your absence is officially excused.

I. INTRODUCTION

Overview: Many books and articles now suggest that mankind is not now living in harmony with the environment and may be incapable of doing so. We shall use this question -- Can our economic and political institutions produce sustainable high levels of human welfare in the presence of a finite environment? -- as the organizing principle of the course. Following an initial lecture that gives an overview of the course and clarifies some of the administrative details, we begin our inquiry by focusing on the range of specific hypotheses that have been advanced. These hypotheses will then be dissected and the component arguments will be examined in more detail over the rest of the course.

<u>Session 1:</u> September 6 th	Administrative Details and Overview TT, "Visions of the Future," Chapter 1
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II. PERSPECTIVES

Overview: How anyone views environmental problems and potential solutions to those problems depends on how they organize the various facts, how they interpret them and what kinds of values they bring to bear on the issues raised. Before going into a detailed look at environmental and natural resource economics, it is important to place the ideology of conventional economics in the context of other prevailing ideologies in both the natural and social sciences. In this section we undertake this task.

<u>Session 2-3:</u> September 11 th -13 th	Valuing the Environment: Economic Concepts and Methods TT, "Valuing the Environment: Concepts," Chapter 2 TT, "Valuing the Environment: Methods," Chapter 3
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<u>Session 4:</u> September 18 th	Economic Incentives and Environmental Problems TT, "Property Rights, Externalities and Environmental Problems," Chapter 4
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<u>Session 5</u> September 20 th	What is Sustainable Development? TT, "Sustainable Development: Defining the Concept," Chapter 5
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<u>Sessions 6</u> September 25 th	Maximizing the Value of Resources TT, "The Allocation of Depletable and Renewable Resources: An Overview," Chapter 7
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III. NATURAL RESOURCE ECONOMICS

Overview: Having examined the major perspectives which shape an understanding of environmental and natural resource problems in general, we turn to an analysis of specific natural resource problems which have arisen and the policy responses to them. A central question is how our economic and political institutions allocate natural resources.

Session 7-8
Sept 27th-Oct 2nd

Energy Choices
TT, "Energy" Chapter 8

Session 9
October 4th

Population and the Environment
TT, "The Population Problem", Chapter 6

Session 10
October 9th

Water Scarcity
TT, " Replenishable, but Depletable Resources: Water" Chapter 10

Session 11
October 11th

Land use Control
TT, "Land Use Control" Draft New Chapter, available on course web site

Session 12
October 16th

Review Session

This period will be reserved for a review of the preceding material. The entire session will be devoted to answering your questions.

Session 11
October 17th
7:00 pm

FIRST EXAMINATION
Keyes 105

Note: Class will not meet on October 18th as compensatory time for the evening exam. For those who have an excused absence from the evening exam, the make up will be given during your normal class period on October 18th.

October 22nd and 23rd Fall Break

Session 14
October 25th

Forests
TT, "Storable, Renewable Resources: Forests" Chapter 12

Sessions 15-16
Oct 30th Nov 1st

Preserving Wildlife
TT, "Renewable Common Property Resources: Fisheries and other Species"
Chapter 13

IV. ENVIRONMENTAL ECONOMICS

Overview: Having dealt with the economics of resource extraction and use, we now turn to the other side of the coin--managing the flows of waste back into the environment. In this section we shall begin by identifying the various kinds of pollutants and defining the problems they cause. We then move on to the various possible responses the government could take to adequately protect its citizens from the risks posed, using this framework to evaluate current environmental policy.

Sessions 17-18
November 6th 8th

Pollution Control: An Overview

TT, "Economics of Pollution Control: An Overview," Chapter 15
TT, "Stationary-Source Local Air Pollution," Chapter 16

Session 19
November 13th

Review Session

Session 20
November 14th
7:00 pm

SECOND EXAMINATION
Diamond 142

Note: No class on November 15th as compensatory time for evening exam. For those who have an excused absence from the evening exam, the make up will be given during your normal class period on November 15th.

Session 21
November 20th

Transboundary Pollution Control

TT, " Regional and Global Air Pollutants: Acid Rain and Atmospheric Modification", Chapter 17

Session 22
November 27th

Mobile Sources

TT, "Mobile-Source Air Pollution" Chapter 18

Session 23
November 29th

Environmental Justice

TT, "Environmental Justice" Chapter 21

V. THE DEVELOPMENT CONNECTION

Overview: You have now been through in some detail the nature of the various limits to growth--the accumulation of waste products, the decline of environmental amenities, and the depreciation of our finite resource base--and the kinds of policies which can be, and have been, taken to circumvent them. We now turn to an overall assessment of the validity of the competing hypotheses about the future with which we started the course.

Session 24-25
December 4th -6th

Completing the Circle

TT, "Development, Poverty and the Environment" Chapter 22

TT, "The Quest for Sustainable Development" Chapter 23

TT, "Visions of the Future Revisited," Chapter 24