Environmental and Resource Economics
AREC 534
Syllabus, Assignments and Information

Instructor: William Jaeger
Department of Agricultural & Resource Economics
Oregon State University
226A Ballard Extension Hall

Course Description
This course examines environmental and natural resource issues emphasizing the role of economics in understanding their causes, consequences, and potential solutions. Sustainable natural resource use, climate change, biodiversity, clean air and water, overfishing, deforestation, ecosystem services, are among the topics examined using the tools of economic analysis. By understanding the causes of environmental problems (externalities, market failure, tragedy of the commons, etc.) economic analysis can lead directly to recognizing a range of potential solutions (regulation, collective management, property rights and market-based incentives). Methods for measuring environmental damages and estimating the cost-effectiveness of alternative solutions are shown to be influential ways to make better policy decisions for managing our natural resource base.

The course begins with a review of core economic concepts, including tradeoffs, efficiency, opportunity cost, profits and consumer surplus. We then consider market failures—failure of a market to achieve efficiency—that can arise with externalities, public goods and common property resources. We consider policies designed to address externality problems in the context of air and water pollution and conclude with an examination of non-market valuation techniques and their use in policy development and evaluation. We look at static and dynamic models of natural resource allocation, including the class of well-known models used to study optimal management of renewable resources such as fisheries and forests. The models examined in this class provide a framework for examining policies designed to achieve socially optimal outcomes. We examine the advantages or disadvantages of differing institutions (private property, markets, regulations and public policy). The ethical and moral underpinnings of these policies will be considered, as well as the goal of sustainability and equity. In addition to considering the theoretical basis for policy design, we will evaluate some existing and proposed policies in several case studies (e.g., climate change, the Endangered Species Act, protected areas and Clean Air Act regulations, fisheries and water, land use regulation).

Target Audience
The course is designed for graduate students or professionals in the private, public or non-governmental sectors who do not have extensive training in economics, but who would benefit from exposure to the economics of environmental and natural resource management, especially with a view toward policy and solutions to current problems. This course will be of interest to graduate students in fields such as law, environmental sciences, environmental studies, ecology, forestry, engineering, marine resource management, geosciences, public policy, and others involved in environmental protection, natural resource management, and related public policy issues.
Learning Outcomes
At the end of this course, students will be able to identify and describe the economic concepts and frameworks that relate to an efficient allocation of resources. They will be able to describe the different kinds of “institutions” that can contribute to achieving efficiency with respect to private goods, public goods, and common pool resources (property rights, laws, markets, regulation, informal rules). Using the standard concepts of benefits and costs, students will be able to assess a wide range of policy options or investments. They will be able to judge policy proposals based on benefit-cost criteria as well as synthesizing information about criteria that are more difficult to quantify (e.g., equity, fairness). The student’s comprehension of concepts like benefits and costs will include being able to describe the different variations of benefits and costs including marginal, average, total, discounted, long-run or short-run versions.

Students will be familiar with the main types of policy tools that governments can use to correct “market failures” related to the environment, and with this knowledge they will be able to assess the advantages and disadvantages each may have in different settings. Students will be able to identify and describe the philosophical underpinnings of normative economic analysis, and its relationship to concepts of equity, sustainability, fairness, rights and freedoms. With this comprehension, they will be able to judge, evaluate and critique policy proposals and projects, and critique the merits of advocacy positions from interest groups across the spectrum.

Prerequisites: AREC 311 or its equivalent, or permission of the instructor.

Credits: 3

Class meetings: twice per week for 80 minutes.

Readings
The main textbook for this course is Jaeger, W.K. 2005. Environmental Economics for Tree Huggers and Other Skeptics, Island Press (available in paperback). There will be also be supplemental readings assigned from journals and other sources, and these will be made available on Blackboard or by other means.

Grading
Grading is A through F. Your grade will be based on a mid-term exam (20%), a comprehensive final exam (30%), a group project/presentation (20%), and homework, other in-class exercises and class participation (30%). Exams will cover material presented in lectures, assigned readings, and homework assignments.

Statement Regarding Students with Disabilities:
Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 737-4098.

Expectations for Student Conduct (cheating policies):

Oregon State University defines academic dishonesty as: “An intentional act of deception in which a student seeks to claim credit for the work or effort of another person or uses unauthorized materials or fabricated information in any academic work.” Academic dishonesty includes: Cheating, Fabrication, Assisting, Tampering, Plagiarism. More information, including the process by which
Course topics and list of readings (one per)

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<tr>
<th>Week</th>
<th>Topic</th>
<th>Assignments</th>
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<tr>
<td>1</td>
<td>Introduction -- conceptual framework, topics, institutions</td>
<td>Jaeger, Preface &amp; Chapter 1</td>
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<td>Tradeoffs, efficiency, demand</td>
<td>Jaeger, chapter 2</td>
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<td>Problem set</td>
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<td>2</td>
<td>Production, profit and supply</td>
<td>Jaeger, chapter 3</td>
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<td>Problem set</td>
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<td>Market failure</td>
<td>Jaeger, chapter 5</td>
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<td>3</td>
<td>Property rights</td>
<td>Jaeger, chapter 9</td>
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<td>4</td>
<td>Pollution control policies</td>
<td>Jaeger, chapter 10</td>
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<td>Time and sustainability</td>
<td>Jaeger, chapters 4 and 6</td>
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<td>Land and forests</td>
<td>Jaeger, chapter 11</td>
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Fisheries
   Jaeger, chapter 12
   “Study Sees ‘Global Collapse’ of Fish Species” (NYTimes Nov. 3, 2006);
   “Where the Tuna Roam” (NYTimes, Nov. 4, 2006); Worm, Boris et al. 2006.
   Impacts of Biodiversity Loss on Ocean Ecosystem Services, Science.

6 Fisheries continued.
   Problem set

MID-TERM EXAM

7 Policy failure
   with Multiple Objectives & Unintended Consequences; Jaeger, “Markets for
   Ecosystem Services”

Economic growth and development
   Jaeger, chapter 7
   Carson, Richard, 2010. The Environmental Kuznets Curve: Seeking
   Empirical Regularity and Theoretical Structure
   Handout: A new look at the Environmental Kuznets Curve
   Problem set

8 International trade
   Jaeger, chapter 8
   (accessed at http://www.iisd.org/trade/handbook/

Economics and morality
   Jaeger, chapters 16 and 17
   Michael Sandel, It’s Immoral to Buy the Right to Pollute (with replies),

9 Climate change
   Economics of Climate Change (Goulder and Pizer);
   IPCC Summary for Policy Makers;
   Krugman, Building a Green Economy

10 Group presentations