

Environmental Economics

AAE / Econ / Envir. St. 343
Fall Term 2008

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Class Meetings: 11:00-12:15 (TR) in 1351 Chemistry.

Office Hours: Dave- TR 4:00-5:00; W 2:30-3:45
Luciana- F 10:55-11:55

Course Website: www.aae.wisc.edu/lewis/343

Course Description:

The goal of this course is to introduce students to major ideas and concepts in the field of environmental economics. Given the diverse backgrounds of students with respect to previous coursework in economics, the approach taken in this course is to balance the use of standard tools in economic analysis (e.g. graphs) with assigned readings, discussion, and writing assignments. The focus throughout the term will be centered on applied real-world problems.

Thematically, the course is organized around four major questions:

1. Why do environmental problems occur and how can we do better?
2. How much environmental damage should be allowed?
3. Are we running out of natural resources?
4. How can countries cooperate to improve the global environment?

We will examine each of these major questions by developing a set of economic tools and then analyzing real-world issues related to each question.

Another major goal of this class is to introduce students to a range of contemporary real world environmental problems. In class we will spend considerable time examining case studies on controlling air and water pollution, endangered species protection, natural resource scarcity, and international agreements for climate change. You will also be assigned a series of short outside readings and related writing assignments that will cover the following issues: management of ocean resources, urban sprawl, agricultural irrigation and water rights, groundwater depletion, land and wildlife conservation, dam removal, noise pollution, oil extraction, and international environmental treaties. The readings have been chosen to represent both contemporary environmental issues as well as issues of historical relevance for current environmental policy.

Readings:

The textbook for this class is the following:

Hanley, N., Shogren, J., and B. White. 2001. *Introduction to Environmental Economics*. Oxford University Press.

Outside readings include journal, magazine, and other articles that are available as on-line reserves through your myUW account.

Course Website:

The course website will house documents such as the syllabus, homework assignments and solutions, review materials, solutions to exams, and power point slides that I use in class. To give you an incentive to come to class and not just download the power point slides, I reserve the right to withhold some slides from the website. Only those who come to class will have the complete set of notes. Keep this in mind if you contemplate skipping class. I may also post announcements on the site as needed. Check the website regularly.

Grading:

Your grade will be based on two mid-term exams, a comprehensive final exam, and homework assignments. Exams will cover material presented in class, assigned readings, and homework assignments. An emphasis will be placed on material that we discuss in class, so class attendance is required for a satisfactory performance. The mid-term exams each count for 20 percent of your grade, the final exam counts for 40 percent, and homework assignments will count for the remaining 20 percent. Homework assignments will be based on outside readings and will focus on applying concepts from class to real-world environmental problems. There will be approximately 8-10 assignments throughout the term. The final exam is scheduled for Thursday, December 18 at 2:45 pm, no exceptions. Do not purchase a plane ticket to leave before this time as I only give one final exam.

Policy on Make-up Exams and Late Homework:

Exams are given only at the scheduled time. If you have to miss a mid-term exam due to a personal emergency, the points for the exam will be reallocated to the final exam (that is, your final exam will be worth 60 percent of your grade). Homework assignments are due in class on dates that I will announce. On the day an assignment is due, I will accept late assignments between the time class ends and when I leave work for the day (usually 5:00 pm). Otherwise, late assignments will not be accepted. I will drop your lowest homework grade, so if you cannot turn in an assignment due to a personal emergency it will not count against you.

Expectations:

I expect you to attend every class, having done the reading in advance and prepared to participate in a discussion of the reading. In return, you can expect me to be prepared and organized, open to your ideas, and fair in evaluating your performance.

Feedback:

I welcome your feedback on the course at any time during the term. Feel free to send me email, call me, drop by my office hours, etc. Your input is essential for me to make necessary adjustments in the current course and to improve the course in the future.

Class Schedule

Topic

Basic Economic Analysis - Review

Question #1: Why do environmental problems occur and how can we do better? Market failure and environmental policy.

Topic #1: Property rights and market failure

Reading: Chapter 2.1 - 2.3

Topic #2: Policy Instruments for market failure

Reading: Chapter 2.4

Topic #3: Incentives for conserving natural resources

Reading: [1], [2], [3]

Topic #4: Pollution control case studies

Reading: Chapter 11; [4], [5], [6]

Exam #1 (10/2/2008)*

Question #2: How much environmental damage should be allowed? Cost-benefit analysis for the environment.

Topic #5: Economic Valuation and the Environment

Reading: Chapter 3.1 - 3.4

Topic #6: Cost-Benefit Analysis

Reading: Chapter 4; [7], [8]

Topic #7: Case Study on Endangered Species Protection.

Reading: [9], [10], [11]

Exam #2 (11/6/2008)*

Question #3: Are we running out of natural resources? The economics of resource extraction and sustainable development.

Topic #9: Resource Allocation Over Time

Reading: Chapter 14; [12], [13]

Topic #10: Sustainable Development

Reading: Chapter 6.

Topic #11: Case Study on Economic Scarcity.

Reading: [14]

Question #4: How can countries cooperate to improve the global environment? International environmental issues.

Topic #12: Strategic Interaction and Game Theory

Reading: Chapter 7

Topic #13: Case Study on Global Climate Change.

Reading: Chapter 12; [15], [16]

Final Comprehensive Exam (12/18/2008 @ 2:45pm)

***Note: midterm dates are tentative.**

Outside Reading List

- [1] Peterson, J.M., Marsh, T.L., and J.R. Williams. 2003. "Conserving the Oglalla Aquifer: Efficiency, Equity, and Moral Motives." *Choices*, First Quarter, pp. 15-18.
- [2] Sanchirico, J., and J.E. Wilen. 2002. "Global Marine Fisheries Resources: Status and Prospects." *Resources for the Future Issue Brief #02-17*.
- [3] Newell, R., Sanchirico, J., and S. Kerr. 2002. "Fishing Quota Markets." *Resources for the Future Discussion Paper 02-20*.
- [4] Portney, P.R. 2002. "Penny-Wise and Pound-Foolish? New Car Mileage Standards in the United States." *Resources*, 147: 10-15.
- [5] Burtraw, D., Evans, D.A., Krupnick, A., Palmer, K., and R. Toth. 2005. "Economics of Pollution Trading for SO₂ and NO_x." *Resources for the Future Discussion Paper 05-05*.
- [6] Gaumnitz, L. 2002. "Restoring Life to a Watershed." *Wisconsin Natural Resources Magazine*, February.
- [7] Newell, R., and W. Pizer. 2002. "Discounting the Benefits of Climate Change Policies Using Uncertain Rates." *Resources*, 146: 15-20.
- [8] Chestnut, L.G., and D.M. Mills. 2005. "A Fresh Look at the Benefits and Costs of the U.S. Acid Rain Program." *Journal of Environmental Management*, 77: 252-266.
- [9] Shogren, J.F., Tshirhart, J., Anderson, T., Ando, A.W., Beissinger, S.R., Brookshire, D., Brown, G.M., Coursey, D., Innes, R., Meyer, S.M., and S. Polasky. 1998. "Why Economics Matters for Endangered Species Protection." *Conservation Biology*, 13(6): 1257-1261.
- [10] Rubin, Jonathan, Helfand, Gloria, and John Loomis. 1991. "A Benefit-Cost Analysis of the Northern Spotted Owl." *Journal of Forestry*, December, pp. 25-30.
- [11] Nelson, E., Polasky, S., Lewis, D.J., Plantinga, A.J., Lonsdorf, E., White, D., Bael, D., and J. Lawler. 2008. "Efficiency of Incentives to Jointly Increase Carbon Sequestration and Species Conservation on a Landscape." *Proceedings of the National Academy of Sciences*, 105(28): 9471-9476.
- [12] Appenzeller, Tim. 2004. "The End of Cheap Oil." *National Geographic*, Jun, v.205 (6): 80-100.
- [13] Bartis, J.T., LaTourette, T., Dixon, L., Peterson, D.J., and G. Cecchine. 2005. "Oil Shale Development in the United States: Prospects and Policy Issues." RAND Corporation Report for U.S. Department of Energy, 8p.
- [14] Tierney, J. 1990. "Betting the Planet." *New York Times Magazine*, Dec. 2.
- [15] Appenzeller, T. 2007. "The Big Thaw." *National Geographic*, June, v. 211(6): 56-71.
- [16] Stavins, R.N. 2004. "Forging a More Effective Climate Change Treaty." *Environment*, 46(10): 22-30.