

## ENVIRONMENTAL STUDIES 55: ECOLOGICAL ECONOMICS

Winter 2016  
Lecture: MWF 10:00-11:05  
X-hour: Th 12:00-12:50  
Classroom: 7 Steele

Prof. Rich Howarth  
Office hours: Th 12:00-2:00  
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**Course Description:** This course examines the links between economic and ecological systems with an emphasis on the interplay between values and institutions in environmental problem-solving. Concepts pertaining to welfare economics, common pool resources, ecosystem valuation, and environmental ethics are developed and applied to problems such as fisheries and forest management, biodiversity conservation, and global environmental change. The course emphasizes the relationship between economic growth, ecosystem services, and human flourishing in the definition and pursuit of sustainable development.

**Prerequisites:** The course is aimed at students who have a basic knowledge of environmental issues (Environmental Studies 2 or 3), microeconomics (Economics 1 or 2), and good math skills (Mathematics 3). While students with weaknesses in one of these areas can succeed in the course, a grasp of either basic economics or calculus is especially important.

**Course Requirements:** Course evaluations will be based on four homework assignments (10%), a midterm (30%), a final examination (30%), and an 8-10 page paper (30%). Papers will assess the peer-reviewed literature on a topic of your choosing that is relevant to the course and that engages with your overall academic interests. See the “Guidelines for Final Papers” on p. 5.

**Teaching Assistant:** Leehi Yona ([Leehi.Yona.16@dartmouth.edu](mailto:Leehi.Yona.16@dartmouth.edu)) will serve as the teaching assistant in this class, holding office hours to help with questions concerning the homework assignments.

**Readings:** The textbook for this course – *Environmental and Natural Resource Economics: A Contemporary Approach* by Jonathan M. Harris and Kevin Roach (3<sup>rd</sup> edition, M.E. Sharpe, 2013) – is available at Wheelock Books. In addition, the course makes extensive use of supplementary readings, which may be accessed via Dartmouth’s electronic reserve system or by following the hyperlinks provided in this syllabus.

**Disabilities and Religious Observances:** Students with disabilities should contact the instructor during office hours to discuss the accommodations they require to succeed in the course. Students who need accommodations in order to participate in religious observances that occur during the term should also confer with the instructor by the end of the second week.

**Academic honor:** Students may discuss homework assignments with each other provided that the work they submit for credit is their own. For a math problem, this means that you should understand each step involved in the solution and be able to reproduce it independently. Papers must be written by the student and reflect his or her own interpretation of the subject matter. Under Dartmouth’s Academic Honor Principle, it is impermissible to give or receive assistance during an examination.

## Class Schedule

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- M 1/4 Introduction and overview  
Reading: Harris and Roach, ch. 1.
- W 1/6 Ethical foundations  
Readings: R. Eriksson and J.O. Andersson, “Ethics and Ecological Economics,” ch. 3 in *Elements of Ecological Economics*, Routledge, New York, 2010; **and** A. Srinivasan, “Questions for Free-Market Moralists,” *New York Times*, October 20, 2013. ([link](#))
- F 1/8 Efficiency, equity, and the market  
Reading: Harris and Roach, Appendix 3.1 (pp. 57-65).
- M 1/11 Externality theory  
Reading: Harris and Roach, ch. 3.
- W 1/13 Common pool resources  
Reading: Harris and Roach, ch. 4.
- Th 1/14 Working with Excel (*X-hour*)
- F 1/15 Bioeconomic modeling (**Homework #1 due**)  
Reading: Harris and Roach, ch. 13.
- M 1/18 *No Class – MLK Day*
- W 1/20 Fisheries management  
Reading: R. Hilborn, “Moving to Sustainability by Learning from Successful Fisheries,” *Ambio*, vol. 36, pp. 296-303, 2007. ([link](#))
- F 1/22 Nonmarket valuation (**Homework #2 due**)  
Reading: Harris and Roach, ch. 6 (skim pp. 121-125 and 131-134 on discounting).
- M 1/25 Valuing biodiversity  
Reading: R. Bandara and C. Tisdell, “The Net Benefit of Saving the Asian Elephant: A Policy and Contingent Valuation Study,” *Ecological Economics*, vol. 24, pp. 93-107, 2004. ([link](#))
- W 1/27 Ecosystem services  
Reading: P. Sukhdev, H. Wittmer, C. Schröter-Schlaack, C. Nesshöver, J. Bishop, P. ten Brink, H. Gundimeda, P. Kumar, and B. Simmons, “Mainstreaming the Economics of Nature: A Synthesis of the Approach, Conclusions and Recommendations of TEEB,” UNEP, Geneva, 2010. ([link](#))

- F 1/29 Income and well-being  
Reading: T. Jackson, “Live Better by Consuming Less? Is There a ‘Double Dividend’” in Sustainable Consumption?” *Journal of Industrial Ecology*, Vol. 9, pp. 19-36, 2008. ([link](#))
- M 2/1 Critiques of cost-benefit analysis  
Reading: G. Wegner and U. Pascual, “Cost-Benefit Analysis in the Context of Ecosystem Services for Human Well-Being: A Multidisciplinary Critique,” *Global Environmental Change*, vol. 21, pp. 492-504, 2011. ([link](#))
- Tu 2/2 Review session, 6:00-7:00 p.m.
- W 2/3 **Midterm examination**
- F 2/5 *No class* (Prof. Howarth on travel)
- M 2/8 Discounting the future  
Reading: Harris and Roach, pp. 121-125 and 131-134; **and** L.H. Goulder and R.N. Stavins, “Discounting: An Eye on the Future,” *Nature*, vol. 419, pp. 673-674, 2002. ([link](#))
- W 2/10 Nonrenewable resources  
Reading: Harris and Roach, ch. 5
- Th 2/11 Topics in energy policy (*X-hour*)  
Readings: Harris and Roach, ch. 12; **and** H. Choi Granade, J. Creyts, A. Derkach, P. Farese, S. Nyquist, and K. Ostrowski. “Unlocking Energy Efficiency in the U.S. Economy,” McKinsey and Company, San Francisco, 2009. ([link](#))
- F 2/12 Discounting and conservation  
Reading: Harris and Roach, ch. 14.
- M 2/15 Climate change governance  
Readings: Harris and Roach, ch. 18; **and** J. Broome, “The Ethics of Climate Change,” *Scientific American*, vol. 298, pp. 97-102, 2008. ([link](#))
- W 2/17 Forests and climate change  
Guest lecturer: Dr. David Lutz  
Reading: A. Agrawal, D. Nepstad, and A. Chhatre, “Reducing Emissions from Deforestation and Forest Degradation,” *Annual Review of Environment and Resources*, vol. 36, pp 373-96, 2011. ([link](#))
- F 2/19 Limits to growth? (**Homework #3 due**)  
Reading: Harris and Roach, ch. 2

- M 2/22 Weak sustainability  
Reading: R.M. Solow, “Sustainability: An Economist’s Perspective,” pp. 179-187 in *Economics of the Environment* (R. Dorfman and N.S. Dorfman, eds.), Norton, New York, 1993. ([link](#))
- W 2/24 Natural resource accounting  
Reading: Harris and Roach, ch. 8.
- F 2/26 The Genuine Progress Indicator (**Homework #4 due**)  
Reading: I. Kubiszewski, R. Costanza, C. Franco, P. Lawn, J. Talberth, T. Jackson, and C. Aylmer, “Beyond GDP: Measuring and Achieving Global Genuine Progress,” *Ecological Economics*, vol. 93, pp. 57-68, 2013. ([link](#))
- M 2/29 Strong sustainability and critical natural capital  
Readings: Harris and Roach, ch. 7; **and** P. Ekins *et al.*, “A Framework for the Practical Application of the Concepts of Critical Natural Capital and Strong Sustainability,” *Ecological Economics*, vol. 44, pp. 165-185, 2003. ([link](#))
- W 3/2 Social metabolism and “degrowth”  
Reading: H. Haberl, M. Fischer-Kowalski, F. Krausmann, J. Martinez-Alier, and V. Winiwarter, “A Socio-metabolic Transition towards Sustainability? Challenges for Another Great Transformation,” *Sustainable Development*, vol. 19, pp. 1-14, 2011. ([link](#))
- F 3/4 Green growth and globalization (**Final paper due**)  
Reading: Harris and Roach, ch. 17.
- M 3/7 Summary and review
- M 3/14 **Final examination**  
8:00 a.m., location to be announced
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## GUIDELINES FOR FINAL PAPERS

### Paper Topics

Your final paper should present a *review essay* on the state of the peer-reviewed literature on a topic of your choosing that is relevant to this course and that engages with your overall academic interests. Because ecological economics is an interdisciplinary field that draws on concepts and methods from ecology, economics, and environmental social science, the range of potential topics is broad.

One option is to focus on a current problem in environmental policy and governance and how it is approached in the research literature. For example, a paper might explore the ecological, economic, and institutional dimensions of elephant conservation in sub-Saharan Africa, and the relative effectiveness of the ivory trade ban under the Convention on International Trade in Endangered Species.

Alternatively, you might choose a topic that is more conceptual or methodological in nature. A paper might, for example, explore the potential to save energy through the adoption of cost-effective energy-efficient technologies, and the behavioral and institutional barriers to technology adoption.

In researching and writing your paper, please pay attention to the following points:

- Your paper should *cite a minimum of ten published articles, books, or working papers*. Avoid citing web sites, news stories, and magazine articles unless they are important to your line of reasoning and are not backed up by an underlying primary source.
- Assume that *your audience consists of researchers and/or policy professionals*. These readers may not know the specifics of your topic, but generally will have a broad knowledge of ecological economics and environmental studies.
- Use [Google Scholar](#) and/or the [Web of Science](#) to identify topics and publications in the research literature. Note that standard internet search engines are *not* good at finding peer-reviewed publications, which are often copyrighted and hence available only on specialized web servers.
- You might also browse for articles in journals such as [Ecological Economics](#), [Climatic Change](#), [Ecology and Society](#), [Energy Policy](#), and [Global Environmental Change](#). The specific source doesn't matter as long as the topic in question is both interesting to you and (broadly) relevant to the course. Most journals at Dartmouth can be accessed online via the library web site.

### Style

- Papers should be *8-10 pages* in length with *one-inch margins, double spacing, and 12-point fonts*.
- *Give your paper a title, and organize it in sections*, including an introduction, a conclusion, a reference list, and sections in between that address discrete issues or themes.
- *Include page numbers* throughout your document.
- *Use the author/date citation and reference style*, following the APA format or the style used in *Ecological Economics*.