

EEP 161 ADVANCED TOPICS IN ENVIRONMENTAL
AND RESOURCE ECONOMICS

Fall Semester, 2010

Syllabus

Topics

- Roots of Resource Economics
- Models of Exhaustible and Renewable Resource Use
- Applications to Energy, Timber, and the Environment
- Resources and Sustainability
- Economics of Climate Change

Requirements and Grading

The course will meet on Tuesday and Thursday, 3:30 to 5:00 pm, in 141 Giannini Hall. Sections will meet on Wednesday from 9-10 am in 2304 Tolman and on Friday from 2-3 pm in 243 Dwinelle.

Students are expected to read designated papers before each lecture. The reading list and lecture notes are available on bspace. The one item on the reading list marked with an asterisk is not available online and is on reserve in the Giannini Foundation Library. There is no textbook for this class.

There will be 4-5 problem sets that will not be graded but will be discussed in section. Grades will be based on:

- 2 in-class exams (in the 7th week of class and last week of class), 35 points each
- a 2-page write-up of a climate change computer simulation exercise, 15 points
- a 800 word op-ed piece, possibly complemented by an in-class presentation, 15 points

There will be no final exam.

As a courtesy to your fellow students and instructors, please no ringing cellphones or open laptops. We will try to make slides available on bspace before lecture; please feel free to print these out and bring them to class.

Office Hours

Fisher: 232 Giannini Hall (510/642-7555; acfisher@berkeley.edu), Tuesday 5:00 to 6:00 pm, or by appointment

Martin: 310 Giannini Hall (llamartin@berkeley.edu), Thursday 5:00 to 6:00 pm, or by appointment

Anthony Fisher & Leslie Martin
Fall Semester, 2010

**EEP 161 Advanced Topics in Environmental
and Resource Economics**

Reading List

1. Roots of Resource Economics

T. Malthus. *An Essay on the Principle of Population*, 1798, Chapters 1-2.

D. Ricardo. *On the Principles of Political Economy and Taxation*, 1821, Chapters 2-3.

Fisher Notes: "Introduction: The Roots of Resource Economics."

2. Dynamics: Exhaustible Resources, Renewable Resources, and the Environment

a. Optimal Depletion of Exhaustible Resources

Fisher Notes: "Optimal Depletion: Concepts and Derivations" and "Optimal Depletion: Some Examples."

R.M. Solow. "Richard T. Ely Lecture: The Economics of Resources or the Resources of Economics." *American Economic Review*, No. 64 (1974), pp. 1-14.

Fisher Notes: "Empirical Evidence for the Optimal Depletion Model."

Fisher Notes: "Nordhaus Energy Model: The Allocation of Energy Resources."

b. Optimal Harvest of Renewable Resources

Fisher Notes: "Analytics of Optimal Timber Harvesting."

c. Irreversible Impacts on the Environment

J.V. Krutilla. "Conservation Reconsidered." *American Economic Review*, No. 47 (1967), pp. 777-786.

Fisher Background Notes: "Risk and Uncertainty." (possibly covered in section)

Fisher Notes: "Irreversible Impacts on the Environment: The Concept and Computation of Option Value."

3. Natural Resources and Sustainability

*H.J. Barnett and C. Morse. Scarcity and Growth: The Economics of Natural Resource Scarcity. Baltimore: Johns Hopkins Press, 1963, Chapter 1.

K. Arrow et al. "Are We Consuming Too Much?" Journal of Economic Perspectives, Vol. 18, No. 3 (Summer, 2004), pp. 147-172.

R.M. Solow. "An Almost Practical Step Toward Sustainability." Resources for the Future (1992).

Fisher Notes: "Resources, Growth, and Sustainability."

4. Economic Evaluation of Climate-Change Impacts

J. Chiang. Slides: "The Science of Climate Change."

Fisher Notes: "Impacts of Climate Change on California."

Fisher, A.C. "Determinants of California Farmland Values and Potential Impacts of Climate Change." ARE Update, Vol. 9, No. 5, May/June 2006.

Fisher, A.C. "The Impact of Global Warming." ARE Update, Vol. 5, No. 3, Jan/Feb 2002.

More technical: Wolfram Schlenker, W. Michael Hanemann, and A. C. Fisher. "Water Availability, Degree Days, and the Potential Impact of Climate Change on Irrigated Agriculture in California." Climatic Change, Vol. 81, No. 1 (2007), pp. 19-38.

5. Optimal Control of Greenhouse Gas Emissions: Integrated Assessment Models

Fisher Notes: "The DICE Model."

W.D. Nordhaus. "Rolling the 'Dice': An Optimal Transition Path for Controlling Greenhouse Gases." Resource and Energy Economics, Vol. 15 (1993), pp. 27-50.

D. Chapman, V. Surie, and S. Hall. "Rolling DICE for the Future of the Planet." Contemporary Economic Policy, Vol. XIII (1995), pp. 1-9.

6. Optimal Control of Greenhouse Gas Emissions: Conceptual Issues

- Heal, Geoffrey. "Climate Economics: A Meta-Review and Some Suggestions for Future Research", *Review of Environmental Economics and Policy* 2009 Vol 3: 4-21
- Stern, N. "The Economics of Climate Change." *American Economic Review*: Volume 98, Issue 2, May 2008
- R. Mendelsohn. "Is the Stern Review an Economic Analysis?" Symposium: The Economics of Climate Change: The Stern Review and its Critics. *Review of Environmental Economics and Policy*, Vol. 2, No. 1 (Winter, 2008), pp. 45-60.
- T. Sterner and U.M. Persson. "An Even Sterner Review: Introducing Relative Prices into the Discounting Debate." Symposium: The Economics of Climate Change: The Stern Review and its Critics. *Review of Environmental Economics and Policy*, Vol. 2, No. 1 (Winter 2008), pp. 61-76.
- J.P. Weyant. "A Critique of the Stern Review's Mitigation Cost Analyses and Integrated Assessment." Symposium: The Economics of Climate Change: The Stern Review and its Critics. *Review of Environmental Economics and Policy*, Vol. 2, No. 1 (Winter 2008), pp. 77-93.
- S. Dietz and N. Stern. "Why Economic Analysis Supports Strong Action on Climate Change: A Response to the Stern Review's Critics." Symposium: The Economics of Climate Change: The Stern Review and its Critics. *Review of Environmental Economics and Policy*, Vol. 2, No. 1 (Winter 2008), pp. 94-113.

7. Design of Climate Policy

- Joseph E. Aldy, Alan J. Krupnick, Richard G. Newell, Ian W.H. Parry, William A. Pizer. "Designing Climate Mitigation Policy." *Journal of Economic Literature*, forthcoming 2010.
- Gilbert E. Metcalf, "Designing a Carbon Tax to Reduce U.S. Greenhouse Gas Emissions." *Review of Environmental Economics and Policy*, 2009 Vol 3: 63-83
- Nathaniel O. Keohane. "Cap and Trade, Rehabilitated: Using Tradable Permits to Control U.S. Greenhouse Gases" *Review of Environmental Economics and Policy*, 2009 Vol 3: 42-62
- Heal, Geoffrey. "Reflections—The Economics of Renewable Energy in the United States." *Review of Environmental Economics and Policy*, Winter 2010; Vol 4: 139 - 154.
- Anderson, Soren, Carolyn Fischer, Ian Parry, and James M. Sallee. "Automobile Fuel Economy Standards: Impacts, efficiency, and alternatives." NBER Working Paper 16370, September 2010.
- Gillingham, Kenneth, Richard Newell, and Karen Palmer. "Energy Efficiency Economics and Policy." *Resources for the Future (RFF) Discussion Paper* 09-13, Washington DC, April 2009.