Lawrence H. Goulder

Stanford University
Winter Quarter 2019-2020

Economics 155

Environmental Economics and Policy

Course Description, Lecture Topics, and Readings

I. COURSE DESCRIPTION

Course Focus:

This course examines sources of and remedies for environmental problems in industrialized and developing countries. We focus on the economic underpinnings of important environmental problems and on ways that public policies can ameliorate or solve some of these problems.

Class Meetings:

Lectures are Tuesdays and Thursdays 9:30-11:20 in Econ 139. There will also be a weekly 50-minute section on Fridays from 9:30 to 10:20 in Encina West, Room 108.

Instructors:

The principal instructor for this course is:

Lawrence H. Goulder
Department of Economics, Landau Economics Building Room 328
email: goulder@stanford.edu
phone: 650-723-3706
office hours: Wednesdays 3:00-4:30 or by appt.

The teaching assistant is:

Andrés Yany
Department of Economics, Landau Economics Building 268D
email: ayany@stanford.edu
phone: 650-392-9987
office hours: 5:15-7:15 pm Mondays, Room 350 Landau Economics Building

Prerequisites, Course Requirements and Grading:

To enroll in this course, students must have already taken Economics 50 or an equivalent intermediate microeconomics course approved by the professor.

This is a five-unit course. The course requirements and grading weights are:

requirement	date	weight in overall grade
class participation	all class meetings	15%
15-minute quiz	Thursday, January 30	5%
50-minute midterm	Thursday, February 20	20%
3-hour final exam	Wednesday, March 18, 8:30-11:30 a.m.	40%
research paper	due Wednesday, March 11	20%

We will also be providing problem sets approximately once a week. These will not be graded and are not to be turned in. Their purpose is to help you focus your studies and learn the material more effectively.

For the research paper, you'll apply the concepts and analytical tools from the course to analyze and evaluate current or potential environmental policy. The paper should be 8-10 pages in length. Guidelines for preparing and writing the research paper will be offered later in the course.

Students may take the course on a pass-fail basis.

Exam attendance: The Economics Department has articulated a policy concerning exam attendance and scheduling. Students must take each exam on the dates scheduled above. Exam dates will not be changed for individual students to accommodate job interviews, family events, etc. Exceptions will be made only for serious medical reasons or in the event of a death in the family. If a student athlete must be off-campus the day of an exam, he/she must take the exam on the date above and supply his/her answers by fax on that date.

Students with documented disabilities: Students who may need an academic accommodation based on the impact of a disability must initiate the request with the Student Disability Resource Center (SDRC) located within the Office of Accessible Education (OAE). SDRC staff will evaluate the request with required documentation, recommend reasonable accommodations, and prepare an Accommodation Letter for faculty dated in the current quarter in which the request is being made. Students should contact the SDRC as soon as possible since timely notice is needed to coordinate accommodations.
The OAE is located at 563 Salvatierra Walk (phone: 723-1066, 723-1067 TTY).

II. LECTURE TOPICS AND READINGS

The readings listed below are required. They are available on Canvas and ideally they should be completed prior to the lectures with which they are listed. There is no required textbook for the course, although selections from some textbooks are included below.

1. Introduction and Framework for Analysis

Tues. 1/7 *Introduction:*
Course Topics
Some Background: Trends in Environmental Policy and Quality

U.S. Environmental Protection Agency, 2013. "The Clean Air Act in a Nutshell," pp. 1-9, 12-13, 15-16.

Yale Environmental Performance Index, 2020. Methodology, pp. 1-4.

"UN Says Drastic Action Is Only Way to Avoid Worst Effects of Climate Change – Washington Post, 26 November 2019.

Thurs. 1/9 *Externalities, Market Failures, and Welfare I:*
Nature of Market Failure
Efficiency Impacts of Alternative Policy Instruments

Callan, Scott J. and Janet M. Thomas, *Environmental Economics and Management* (sixth edition), Thomson South-Western, 2016. Ch. 5, pp. 98-109.

Goulder, Lawrence. "Impacts of Emissions Taxes, Abatement Subsidies, and Mandated Technologies." Notes prepared for Economics 155, January 2017.

Tues. 1/14 *Externalities, Market Failures, and Welfare II:*
Distributional Considerations
Tradable Emissions Allowances

Goulder, Lawrence. "Environmental Policy Making in the Presence of Heterogeneous Firms and Damages." Notes prepared for Econ 155, January 2016.

2. Local and Regional Air Pollution Problems

Thurs. 1/16 *Cap and Trade: Theory and Practice*

Burtraw, Dallas and Amelia Keyes, "Recognizing Gravity as a Strong Force in Atmosphere Emissions Markets." *Agricultural and Resource Economics Review,* 2018. *Required pages*: 1-3, 5-14, 17-18 (*i.e.*, Conclusion).

Fowlie, Meredith. "Is Cap and Trade Failing Low Income and Minority Communities?" Energy

Institute at Haas, UC Berkeley, October 10, 2016.

Mazur, Laurie. "Cap-and-Trade? Not So Great If You Are Black or Brown." September 16, 2016.

California Environmental Justice Alliance, 2017. "Justice Deferred: A Breakdown of California's Cap&Trade Bill from the Environmental Justice Perspective."

Tues. 1/21 Government Intervention Reconsidered: The Coase Theorem

Goulder, Lawrence, and Andrew Schein. "Carbon Taxes vs. Cap and Trade: A Critical Review." *Climate Change Economics* 4(3), August 2013. Sections 1, 3.1, 3.2, 3.3, and 3.4.

Kolstad, Charles D., *Environmental Economics,* ch. 6, pp. 99-100, 107-109.

Thurs. 1/23 Local and Regional Pollution Control Policy: General Conclusions

3. Global Environmental Problems: The Greenhouse Effect, Stratospheric Ozone Depletion, and Transnational Acid Rain Deposition

Tues. 1/28 Perspectives on Global Climate Change

Ryan Nunn *et al.,* 2019. "Ten Facts about the Economics of Climate Change and Climate Policy." Prepared for Joint Forum of The Hamilton Project and Stanford Institute for Economic Policy Research.

U.S. Global Change Research Program, November 2018. *Climate Science Special Report.* Chapter 1, "Our Globally Changing Climate," pp. 35-42, 51-52.

World Bank Group, Carbon Pricing Watch 2017, pp. 1-9.

Thurs. 1/30 ***QUIZ****; U.S. National and State-Level Climate Policy Initiatives*

Goulder, Lawrence, "Are Offsets Worthwhile?" Note prepared for Economics 155, January 2019.

"How to Help Brazilian Farmers Save the Amazon." *New York Times,* Dec. 24, 2019.

Center for Climate and Energy Solutions, 2017. "California Cap-and-Trade," and "Summary of California's Extension of Its Cap-and-Trade Program."

Rogers, Paul, "California's Behind on Its 2030 Climate Goals." San Jose Mercury News, 16 Jan. 2020.

Wichman, Casey, "The Strategic Costs of Carbon Emissions." *Resource*s, 31 Jan. 2018.

Tues. 2/4 *Air Pollution Levels and Policies in China (guest lecture by Hongbin Li)*

Challenges to Domestic Climate Policy

"Setting the Right Price for Carbon: Five Questions for Economist Nicholas Stern." *The Conversation*, November 20, 2017.

Thurs. 2/6 *Reconciling Cost-Effectiveness, Fairness, and Political Feasibility in Domestic Climate Policy*

Goulder, Lawrence. "Can Emissions Pricing Be Made More Politically Attractive without a Large Loss of Cost-Effectiveness?" Notes prepared for Econ 155, Winter 2020.

Goulder, Lawrence. A Further Look at the Distributional Impacts of a Carbon Tax

Tues. 2/11 *Environmental Policy Making under Uncertainty*

Goulder, Lawrence. "Climate Policy Decision Making under Uncertainty." Notes prepared for Econ 155. February 2015.

Thurs 2/13 *International Aspects of Environmental Problems – Cooperation and Free-Riding*

Goulder, Lawrence, "Notes on International Cooperation and Free-Riding," notes prepared for Economics 155, December 2016.

Parry, Ian, Chandara Veung, and Dirk Heine, "How Much Carbon Pricing Is in Countries' Own Interests? The Critical Role of Co-Benefits." IMF Working Paper WP/14/174, September 2014. *Required:* pp. 1-10, 16-24.

4. Sustainable Development

Tues. 2/18 *Defining and Measuring Sustainability*

Solow, Robert M. "Sustainability: An Economist's Perspective," in Robert N. Stavins, ed., *Economics of the Environment: Selected Readings*.

Arrow, Kenneth, *et al.*, "Are We Consuming Too Much?" *Journal of Economic Perspectives* Summer 2004. pp. 147-155, 159-169.

Thurs. 2/20 **MIDTERM EXAM**

Thurs. 2/20 (cont'd.) Sources of Unsustainable Economic Paths; Policies to Promote Sustainability

5. Open Access Problems, Overharvesting, and Extinction

Tues. 2/25 *Fisheries I: Open Access and the Threats to Fisheries; Dynamics of the Fish Stock*

Pauly, Daniel. "Aquapalypse Now: The End of Fish." *The New Republic*, September 28, 2009.

United Nations Food and Agriculture Organization, 2018. *The State of the World Fisheries and Aquaculture.* Excerpts in pdf file.

Goulder, Lawrence H., "A Framework for Analyzing Fisheries Problems and Policy Options," notes prepared for Economics 155, March 2018.

"Are Elephant Populations Stable These Days?" *Scientific American,* November 2017.

Thurs. 2/27 Fisheries II: Policy Alternatives

Levy, Sharon. "Catch Shares Management." *BioScience*, November 2010.

Babbitt and Greenwood, "Oceans of Abundance: An Action Agenda for America's Vital Fishing Future," 2010.

Schein, Andrew, "Owning a Piece of a Fishery: The Tradable Permits Approach in Alaska's Halibut Fishery."

6. Valuing the Environment

Tues. 3/3 Valuing Nature:
Philosophical Bases of Value
Empirical Methods for Assessing the Value of Environmental Amenities - I

Conservation Strategy Fund, "Valuation of Ecosystem Services: Classes of Values." Video, July 2013. https://www.youtube.com/watch?v=q8AZHtF2f50

Thurs. 3/5 Empirical Methods for Assessing the Value of Environmental Amenities – II; Valuing Life and Safety

Goodstein, Eban, *Economics and the Environment (*fifth edition), ch. 8, sections 8.1, 8.4, and 8.6-8.8.

Two "Symposium" articles from the Fall 2012 *Journal of Economic Perspectives*: Richard Carson, "Contingent Valuation: A Practical Alternative When Prices Aren't Available," and Jerry Hausman, "Contingent Valuation: From Dubious to Hopeless."

7. Population Growth, the Environment, and the Long Run

Tues. 3/10 Human Population Growth: Economic and Social Factors

Sen, Amartya, "Women's Progress Outdid China's One-Child Policy. *New York Times,* Nov. 2, 2015.

Goulder, "Population Growth, Resource Scarcity, and Per-Capita Welfare," notes prepared for

Economics 155, 2017.

Thurs. 3/12 Population, Technology, the Environment and Human Welfare

8. Conclusions

Thurs. 3/12 (cont'd.) The Environmental Future: Key Analytical Themes, Key Policy Challenges