

ECON 115
ENVIRONMENTAL ECONOMICS
SPRING 2018

Time and Location: Tuesday & Thursday, 3:30-4:45pm Buchanan 1920

Instructor: Kyle Meng

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Office Hours: Thursday, 10:00am-11:00am, Bren Hall 4416.

TA: Jason Maier

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TA sessions: #1. Wednesday 12:00pm-12:50pm Phelps 1425

#2. Wednesday 1:00pm-1:50pm Phelps 1425

Prerequisites

Students must have taken ECON 10A (Intermediate Microeconomic Theory) and have full major status in either Economics or Environmental Studies.

Overview and format

This course introduces students to key concepts in environmental economics and its application to environmental policy design. Topics include optimal environmental policy; cost-effective environment policy and instrument choice; second-best environment policy; directed technical change; and valuation techniques for environmental goods and services. Select classes will also cover timely environmental policy discussions in California and the U.S., and around the world.

The course will consist of two lectures each week. When possible, lecture slides will be posted by the morning before each lecture. In addition, there will be two optional TA sessions each week to review lecture material. These TA sessions will allow students an opportunity to further explore lecture material. The TA will also present questions related to lecture material as practice exam questions. These practice exam questions will be posted online. However, students must attend TA sessions to see how these questions are solved.

Readings

Required readings for this course will consist of papers and selections from Kolstad, C. D. (2011). *Environmental Economics, Second Edition*. Oxford University Press. The first edition of the book may cover most if not all of the relevant material. However, we will not provide assigned reading corresponding to the first edition. Assigned readings (below) should be completed in advance of each lecture. Course readings serve to supplement lecture material and to allow students another way to learn material. Readings, however, will not directly inform exam questions.

Grading and evaluation

The grade for this course will be split between two exams. Lecture material will form the basis for the exams, which are:

- 75-minute in-class midterm (40%)
- 2-hour final (60%)

Communication

We ask that you please not email the professor or TA directly about course material or the exams. Instead, we will use the discussion forum on GauchoSpace to answer such questions. We wish to be able to address any and all questions. But, this is a large class, and it is more efficient to communicate to the class as a whole. In many cases, multiple students may have the same question and can benefit from seeing group replies. The professor and TA will monitor the discussion forum regularly. In addition, students are encouraged to attend either of the two weekly TA sessions or sign up for the professor's office hours.

Academic Integrity

Cheating of any sort will not be tolerated. Any form of cheating, or the facilitation of cheating by others, is grounds for immediate failure of the class.

Honesty and integrity in all academic work is essential for a valuable educational experience. The Office of Judicial Affairs has policies, tips, and resources for proper citation use, recognizing actions considered to be cheating or other forms of academic theft, and students' responsibilities, available on their website at: <http://judicialaffairs.sa.ucsb.edu>. Students are responsible for educating themselves on the policies and to abide by them. Furthermore, for general academic support, students are encouraged to visit Campus Learning Assistance Services (CLAS) early and often. CLAS offers instructional groups, drop-in tutoring, writing and ESL services, skills workshops and one-on-one consultations. CLAS is located on the third floor of the Student Resource Building, or visit <http://clas.sa.ucsb.edu>

UCSB academic support

Disabled Students Program: accommodations for exams Students with disabilities may request academic accommodations for exams online through the UCSB Disabled Students Program at <http://dsp.sa.ucsb.edu/>. Please make your requests for exam accommodations through the online system as early in the quarter as possible to ensure proper arrangement. Managing stress / Supporting Distressed Students Personal concerns such as stress, anxiety, relationships, depression, cultural differences, can interfere with the ability of students to succeed and thrive. For helpful resources, please contact UCSB Counseling & Psychological Services (CAPS) at 805-893-4411 or visit <http://counseling.sa.ucsb.edu/>.

Course schedule

This schedule is tentative. I will do my best to stick to this schedule but we may adjust dates and material as the course progresses. The schedule here describes the topic and key concepts covered in each lecture as well as the readings required in advance of each lecture.

Part I. Overview

Lecture 1: Why study environmental economics?

Readings:

- Kolstad (2011) Ch. 1-2.
- Fullerton, D. and Stavins, R. (1998). How economists see the environment. *Nature*, 395(6701):433

Lecture 2: Review of market equilibrium and welfare economics

Concepts: Pareto efficiency, welfare theorems

Readings:

- Kolstad (2011) Ch. 4.

Lecture 3: Market failures

Concepts: Externalities, public goods, Samuelson condition, voluntary provision

Readings:

- Kolstad (2011) Ch. 5.

Part II. Environmental Policy Design

Lecture 4: Optimal environmental policy, part 1

Concepts: Coase theorem, Pigouvian taxation, Weitzman Rule

Readings:

- Kolstad (2011) Ch. 13.I, 15.II

Lecture 5: Optimal environmental policy, part 2

Concepts: 2nd best policies, market power, double dividend, trade

Readings:

- Kolstad (2011) Ch. 12.IV, 12.V, 19.I.

Lecture 6: Cost-effective environmental policy

Concepts: equi-marginal principle, Pigouvian tax, cap-and-trade, command-and-control

Readings:

- Kolstad (2011) Ch. 11, 13.II

Lecture 7: Cap-and-trade design

Concepts: Point of regulation, offsets, nested policies, linked markets, price collars

Readings:

- Goulder, L. H. and Parry, I. W. (2008). Instrument choice in environmental policy. *Review of environmental economics and policy*, 2(2):152–174
- Aldy, J. E., Krupnick, A. J., Newell, R. G., Parry, I. W., and Pizer, W. A. (2010). Designing climate mitigation policy. *Journal of Economic Literature*, 48(4):903–34, Section 3.

Lecture 8: Innovation and technological change

Concepts: Knowledge spillovers, induced and directed technological change

Readings:

- TBA

Lecture 9: Policy Discussion: California's AB-32

Readings:

- ARE (2010). California's climate change policy: The economic and environmental impacts of ab 32notes from the editors. *ARE Update*, up to pg. 15.

Lecture 10: International environmental policy

Concepts: Nash equilibrium, free-riding

Readings:

- Barrett, S. (2008). Climate treaties and the imperative of enforcement. *Oxford Review of Economic Policy*, 24(2):239–258

Lecture 11: Policy Discussion: UNFCCC and the Paris Climate Agreement

Readings:

- TBA

Lecture 12: Midterm review

Lecture 13: Midterm

Part III. Valuing the environment

Lecture 14: Introduction to valuing the environment

Concepts: willingness to pay/accept, use and non-use value, revealed and stated preference

Readings:

- Kolstad (2011) Ch. 7

Lecture 15: Hedonics, part I

Concepts: sorting equilibrium, causal inference

Readings:

- Kolstad (2011) Ch. 8.I-III, 8.IV through subsection E.
- Davis, L. W. (2004). The effect of health risk on housing values: Evidence from a cancer cluster. *The American Economic Review*, 94(5):pp. 1693–1704

Lecture 16: Hedonics, part II

Concepts: value of statistical life

Readings:

- Kolstad (2011) Ch. 8.IV.F.

Lecture 17: Household production of environmental amenities

Concepts: defensive expenditures, travel cost

Readings:

- Kolstad (2011) Ch. 9.

Lecture 18: Policy Discussion: Climate change damages, part I

Concepts: identifying variation, adaptation

Readings:

- Dell, M., Jones, B. F., and Olken, B. A. (2014). What do we learn from the weather? the new climate-economy literature. *Journal of Economic Literature*, 52(3):740–98

Lecture 19: Policy Discussion: Climate change damages, part II

Readings:

- Houser, T., Hsiang, S., Kopp, R., Larsen, K., Delgado, M., Jina, A., Mastrandrea, M., Mohan, S., Muir-Wood, R., Rasmussen, D., et al. (2014). American climate prospectus. *Economic Risks in the United States. Rhodium Group, LLC*
- Carleton, T. A. and Hsiang, S. M. (2016). Social and economic impacts of climate. *Science*, 353(6304):aad9837

Lecture 20: Final review