

Environmental Economics

Econ/Envs 231
TR 11:00am-12:15pm

Spring 2017
AJLC 201

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Office Hours: Tues. 3:00-4:30, Wed. 2:00-4:00, Thurs. 4:00-5:00, and by appointment

Course Description and Objectives:

Environmental economics extends the principles of economics to environmental policy and examines market failures in the presence of externalities and public goods. We consider policy responses to these market failures such as command-and-control regulations, taxes and subsidies, and tradable permits. We use various techniques to measure the benefits and costs associated with environmental goods not traded in standard markets, we consider policies for various types of local, regional, and global pollution (with a significant focus on global climate change policy), and we explore an economic perspective of sustainability. The objective is that by the end of the semester, you will be aware of the major issues in environmental economics, understand how economists think about environmental problems, understand advantages and disadvantages of several environmental policies, and be able to complete economic analysis on a range of environmental problems.

Prerequisites: Principles of Microeconomics & Macroeconomics (Econ 101 or equivalent).

Readings and Course Documents:

The Blackboard system is the repository for all course-related documents. This includes assigned readings, problem sets, and course announcements. Readings will be assigned for each class from the textbooks listed below or made available through Blackboard based on the reading list provided. There is one required text and one recommended volume of selected readings.

Required Textbook: Callan, S. and J. Thomas. 2013. *Environmental Economics and Management: Theory, Policy, and Applications*. Sixth edition. South-Western Cengage Learning. (ISBN: 9781111826673)

Recommended Textbook: Stavins, Robert N., ed. 2012. *Economics of the Environment: Selected Readings*. Sixth edition. New York, New York: W. W. Norton & Company. (ISBN: 9780393913408)

Grading:

There are six components that make up the course grade.

| | | |
|-----|------------------------------------|---------------------------------------|
| 7% | In-class quizzes and participation | |
| 7% | Discussion session | |
| 20% | Problem sets | |
| 18% | Midterm exam 1 | Tuesday, February 28 th |
| 18% | Midterm exam 2 | Tuesday, April 4 th |
| 30% | Final exam | Wednesday, May 10 th 2-4pm |

In-class quizzes and participation (7%): There will be between ten and fifteen short pop quizzes throughout the semester. These quizzes cannot be made-up if missed. Your lowest two quiz scores will be dropped. Although this is a large class, I value your attendance and participation in all class discussions and activities.

Discussion session (7%): You are responsible for co-leading a 15-minute discussion at the end of a class period on a topic related to environmental economics. You will need to provide me with a copy of an article about your topic at least one week before your discussion. Within one week afterward, you must submit a typed two-page summary highlighting key points and controversies, completed individually.

Problem sets (20%): Six problem sets will be assigned throughout the semester. You are allowed to work on each problem set with one other student in the class. If you choose to work with another student, you must turn in one problem set with both of your names. Problem sets are to be turned in at the beginning of class, and late assignments will not be accepted under any circumstances.

Midterm exams (18% each): The two midterm exams will be February 28th and April 4th. The material will be based on the assigned readings, problem sets, and lectures. There will be no make-ups for the exams. If you have a medical excuse or family emergency and cannot attend the exam, you must let me know at least 48 hours in advance and provide proper documentation.

Final exam (30%): The cumulative final exam will be Wednesday, May 10th 2-4pm. The material will be based on the assigned readings, problem sets, and lectures. An excused absence for the final exam will be handled according to the policy of the college and the Dean of Studies.

Expectations and Feedback:

I expect you to attend every class and to have done the assigned readings. I also expect you to help maintain an effective learning environment by being open-minded and considerate toward your fellow classmates and by refraining from texting, surfing the web, and other behavior that might be distracting. In return, I will strive to conduct organized and insightful class sessions and to treat you and your intellectual work with fairness and respect. I greatly value feedback related to the course subject matter, the lecture pace, and my teaching style. Feel free to talk to me in person, send me an email, or leave an anonymous note in my mailbox in the Department of Economics main office (Rice 233).

Honor Code:

The honor code applies to all graded work, and you must write or type "I have adhered to the Honor Code in this assignment" and sign your name. Presenting someone else's work as your own is a serious offense. Problem sets can be completed with at most one other student, and exams must be individual work with no help from any resource unless specifically authorized.

Students with Disabilities:

If you have a learning disability and require accommodations, please let me know as soon as possible so that your learning needs can be appropriately addressed. You will need to provide documentation of your disability from the Office of Disability Services (Peters G-27/28, x55588).

Course Outline:

- I. Modeling environmental problems
 - a. Modeling the market process
 - b. Modeling market failure
- II. Modeling solutions to environmental problems
 - a. Command-and-control approach
 - b. Market-based approach
- III. Analytical tools for environmental planning
 - a. Environmental risk analysis
 - b. Benefit-cost analysis
- IV. Air pollution and climate change
 - a. Air quality standards
 - b. Mobile and stationary sources of pollution and global challenges
- V. Sustainability and global environmental management
 - a. Economic growth, the environment, and international agreements
 - b. Industrial ecology and pollution prevention

Course Schedule:

| Section | Date | Assignment | Reading |
|---------|---|----------------------|---|
| I. | Jan. 31, Feb. 2 | | Fullerton and Stavins. 1998. "How Economists See the Environment." Callan & Thomas Chapter 1 |
| | Feb. 7, Feb. 9 | | Parry. 2002. "Is Gasoline Undertaxed in the United States?" Mankiw. 2006. "Raise the Gas Tax." (and responses) Callan & Thomas Chapter 2 |
| | Feb. 14, Feb. 16 | PS #1 due Feb. 16 | Coase. 1960. "The Problem of Social Cost." Callan & Thomas Chapter 3 |
| II. | Feb. 21, Feb. 23 | PS #2 due Feb. 23 | Hardin. 1968. "The Tragedy of the Commons." Ostrom et. al. 1999. "Revisiting the Commons: Local Lessons, Global Challenges." Callan & Thomas Chapter 4 |
| | Feb. 28 | Exam 1 | |
| | Mar. 2, Mar. 7 | | Goulder & Parry. 2008. "Instrument Choice in Environmental Policy." Sandel. 1997. "It's Immoral to Buy the Right to Pollute." (and responses) Callan & Thomas Chapter 5 |
| III. | Mar. 9 | | Pindyck. 2007. "Uncertainty in Environmental Economics." Callan & Thomas Chapter 6 |
| | Mar. 14, Mar. 16 | PS #3 due Mar. 16 | Kling et. al. 2012. "From Exxon to BP: Has Some Number Become Better Than No Number?" Callan & Thomas Chapter 7 |
| | Mar. 21, Mar. 23 | | <i>Spring Break</i> |
| | Mar. 28, Mar. 30 | PS #4 due Mar. 30 | Arrow et. al. 1996. "Is There a Role for Benefit-Cost Analysis in Environmental, Health, and Safety Regulation?" Callan & Thomas Chapter 8 |
| | Apr. 4 | Exam 2 | |
| | Apr. 6, Apr. 11 | | Kelman. 1981. "Cost-Benefit Analysis: An Ethical Critique." (and responses) Callan & Thomas Chapter 9 |
| IV. | Apr. 13, Apr. 18, Apr. 20, Apr. 25 | PS #5 due Apr. 20 | Aldy et. al. 2009. "Designing Climate Mitigation Policy." Nordhaus. 2007. "Critical Assumptions in the Stern Review on Climate Change." Stern & Taylor. 2007. "Climate Change: Risk, Ethics, and the Stern Review." Metcalf. 2009. "Market-based Policy Options to Control U.S. Greenhouse Gas Emissions." Callan & Thomas Chapters 10-13 |
| V. | Apr. 27, May 2, May 4 | PS #6 due May 4 | Solow. 1992. "Sustainability: An Economist's Perspective." Frankel. 2004. "The Environment and Globalization." Callan & Thomas Chapters 20-21 |

Discussion Session:

Each student will be responsible for co-leading a 15-minute discussion at the end of a class period on a topic related to environmental economics. You may choose the way you lead the discussion. You may pair up students in the class for discussion, assign students to small groups, or run a large, group discussion. I recommend that if you use small groups, you ask the groups to report to the large group at the end of the discussion period. I encourage you to provide several questions for the group(s) to discuss. You may use slides to facilitate your presentation, but they are not required.

Topic: You may select any topic related to environmental economics, subject to my approval. I encourage you to skim sources such as the *Wall Street Journal*, *New York Times*, *Time Magazine*, *Newsweek*, or *The Economist*. See Blackboard for free, unlimited access to these sources. You will need to provide me with a copy of an article about your topic from a popular press source at least one week before your scheduled presentation. I would prefer that the article be very general and fairly short, so you probably will not use a professional journal article. Please email me a link to the article. I will post a copy of the article to Blackboard at least one class period prior to the discussion date.

Written Summary: Within one week of your discussion, each group member must submit a written summary. The written summary is to be completed individually. Make sure to include the key points and highlight any controversies. Please include a few sentences about why the topic interests you. You may include a few questions that you would like to see addressed in the article or key points that you think should have been included. Class discussion should aid in identifying such points.

The summary should be about one page and no more than two pages using the following format:

- 1 ½ spaced
- 11-point font
- One-inch margins on all sides
- Do not right-justify the text
- Name typed within the top margin “header” and right justified
- Double-sided printing (if applicable)

Grading and Participation: The discussion topic presentation and written summary will be weighted equally and are each (roughly) equivalent to one problem set. In order to encourage students to attend the majority of classes in which other students are leading the discussion, I will track attendance and evaluate participation during the discussions.

Groups and Dates: Discussion groups can have either three or four members. Each group must email me (Subject: 231 Discussion Group) and include the names of all of the group members and a ranking of preferences for these seven dates: 4/13, 4/18, 4/20, 4/25, 4/27, 5/2, 5/4. Note that 5/4 is the last day our class meets, 5/10 is the date of the final, and recall that students must individually submit a written summary within one week of their discussion. College policy is that only the final exam can be due on a date later than 5/5, so if your discussion date is 5/2 or 5/4, your written summary will be due on 5/5, but I will accept it late through 5/9 or 5/11, respectively, without penalty. Discussion dates will be awarded on a first-come, first-served basis, except that all emails received before March 2nd at 11:59pm will be treated equally. Anyone not in a group by March 16th at 11:59pm will be assigned a group.