SYLLABUS: Environmental Economics and Policy

Time  MW 10:05-11:20

Location  144 Bio Sci Building

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Office Hours  TBA

Teaching Assistant  Wen Wang (Office Hours TBA)

Course Summary

This class will focus on the role of the environment in the theory and practice of economics. It will make use of microeconomic and statistical analysis at the intermediate level and will incorporate real-world examples. The class will be divided into three parts. Part I will cover the ways in which markets fail to efficiently allocate resources in the presence of pollution along with the policies that are used to correct those failures. Part II will focus on the empirical techniques used by economists to put values on environmental commodities. Knowing these values is a precondition for properly applying the policies described in Part I. Part III will focus on topics in natural resource economics and sustainability.

Requirements

The following are required for successful completion of the course: (1) a set of short problem sets and writing assignments covering concepts presented in class, (2) a group empirical project in which you will implement a non-market valuation technique,\(^1\) (3) three short papers (4 pages, double spaced, including graphs and references) on environmental topics of your choice (see below), (4) a midterm exam, and (5) a final exam. We will also have a number of in-class activities that are intended to keep things from getting boring. These sorts of activities generally work best if everyone comes prepared and participates. There will also be opportunity for participation in the course of normal lectures. Class participation will be used to decide borderline grades.

\(^1\) For this requirement, students will make use of basic econometric methods. The techniques required to implement these methods will be covered in class.
Prerequisites

Required: Econ 201D
Recommended: One course in statistics

Grading

Grades will be determined based on the following allocation:

- Problem Sets & Misc. Writing Assignments: 20%
- Short Papers (3 parts): 20%
- Group Empirical Project: 20%
- Midterm Exam: 20%
- Final Exam: 20%

Short Papers

You will be required to complete three short papers (each no more than 4 pages in length, double spaced, including graphs and references). Each paper should be based on a news report taken from one of three National Public Radio shows. You do not have to listen to the shows on air – all of their content (current and archived) is available on the Internet:

http://www.npr.org/programs/all-things-considered/
http://www.marketplace.org/

The stories that you choose should be connected to an environmental topic related to something that we have covered in class. The rubric for grading will be as follows:

1. Explain the policy context of the story. What is the story about? (1-5 points)
2. Relate the story to an analytical structure used in a class lecture. You must use at least one figure or equation. (1-5 points)
3. Originality. You will receive full credit if the policy context and analytical structure are different from what you have used in previous papers. (1-5 points)
4. Clear concise writing. (1-5 points)

A detailed rubric will be distributed in class. You do not need to cite any other sources, but are allowed to do so if you find it helpful. The stories can be taken from any time (i.e., current or archived). Two papers are due before spring break, and the remaining paper is due on or before the final day of class.

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2 I have limited your options to these three news outlets as their stories tend to be longer (2.5 to 5 minutes) and more involved than on other commercial news sites. In my experience, their environmental reporting also tends to overlap with many of the topics that we cover. If you find a story on another news outlet that you would like to use, you are permitted to do so, but must first get permission from either the instructor or teaching assistant.

3 Everyone will receive 5 points for originality for the first paper they turn in.
Attendance

Attendance will not be tracked and you are not required to inform the instructor when you will miss a class. Please find out (either from the instructor or another student in the class) what you missed and get the relevant notes. Powerpoint slides are posted on the course Sakai site.

Do let the instructor know if you are going to miss class on the day of a scheduled in-class activity or on the date of the midterm exam. It is important to have a headcount when planning an in-class activity, and we can arrange a make-up time for the midterm exam if it is an excused absence (e.g., sickness, varsity athletics). We can also work around absences caused by job interviews.

The final exam will be held during the normal exam period at the time designated by the Registrar. You should keep this in mind when purchasing airline tickets.

Late Assignments

Due dates for assignments are posted on the syllabus. Late work will be accepted, but an appropriate penalty will be imposed based on how late it is. Please plan ahead and complete assignments on time.

Readings

The required textbook for the class is

- Keohane and Olmstead, Markets and the Environment (Island Press, 2007 or 2016)

It is available at the Duke Bookstore and can also be purchased on Amazon.com. Two additional required readings are:

- South Pole Carbon Asset Management – Going for Gold? Harvard Business School Case Study No. 9-709-030

These will be made available through the Harvard Business School’s web page (details provided in class).

There will be other readings (some required and some optional) presented throughout the semester on the course Sakai page.

Another source of optional readings is:

- Field and Field, Environmental Economics: An Introduction (McGraw Hill – Irwin)

This book is considerably more expensive. A copy will be placed on reserve at Perkins Library.
Part I – Market Failures and Pigouvian Policy

(1) Introduction: What is Environmental Economics (1/13)

- Keohane and Olmstead, Chs. 1 & 4
- Field and Field, Ch. 4 (pp.63-69)

(2) Externalities (1/20)

- Keohane and Olmstad, Ch. 2 (pp.11-27), Ch. 5 (pp.65-76)
- Field and Field, Ch. 4 (pp.69-81)

(3) Pigouvian Policy (1/25, 1/27, 2/1)

- Keohane and Olmstead, Ch. 8 (pp.129-140, 150-151), Ch. 9 (pp.153-161)
- Field and Field: Chs. 10 (pp.193-200, 204-208), 11 & 12

(4) Decentralized Approaches (Information, Voluntary Compliance, and Liability) (2/3)


(5) Coase Theorem (2/10)

- Keohane and Olmstead, Ch. 8 (pp.125-129)
- Field and Field: Ch. 10 (pp.200-204)
(6) Uncertainty (2/15)

- Keohane and Olmstead, pp.143-150
- NERC Podcast

(7) Discounting (2/17)

- Keohane and Olmstead, Ch. 2 (pp.27-30)
- Nordhaus, W. “A Question of Balance: Weighing the Options on Global Warming Policies.”
- Field and Field, Ch. 6 (pp.121-126)

(8) International Agreements (2/22)

- Field and Field, Ch. 21 (pp.456-468)

**In-Class Emissions Trading Exercise (2/24)**

(9) Heterogeneity and Tradable Permits (2/29)

- Keohane and Olmstead, Ch.9 (pp.162-168, 173-181), Ch.10 (pp.182-190)
- Field and Field, Ch.13

(10) Free-Lunches: The Double Dividend and Porter Hypotheses (3/2)

- Keohane and Olmstead, Ch.8 (pp.150-151)

(11) Tragedy of the Commons (3/7)

- Keohane and Olmstead, Ch.5 (pp.76-82)
Midterm Exam (3/9)

(12) Climate Change (3/21)


Part II – Non-Market Valuation

Empirical Group Projects Distributed (Due 3/28)

(13) Cost-Benefit Analysis and Sources of Value (3/28)

- Keohane and Olmstead, Ch.3
- Field and Field, Ch.6 (pp.115-128, 155-157)

(14) Hedonics (3/30)

- Kolstad, Ch.16 (pp.323-331)

(15) Travel Cost (4/4)

- Hanley, Shogren, and White, Ch.3 (pp.53-59)
(16) Stated Preference (4/6)

- Kolstad 18 (pp.355-364)

Part III – Resources and Sustainable Development

(17) Sustainable Development (4/11)

- Keohane and Olmstead, Ch.7 (pp.109-110), Ch.11

(18) Exhaustible Resources (4/13)

- Keohane and Olmstead, Ch.6

(19) Renewable Resources: Elephants and Ivory (4/18)

- Keohane and Olmstead, Ch.7 (pp.110-124)

(20) Growth and the Environment (4/20)


(21) Group Project Presentations, Review (4/25, 4/27)