Economics of the Environment - Econ 4440[1]

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Course Time: TTh 3.05-4.25pm
Course website on T-Square
Office Hours: Monday 3-4pm and Thursday 9-10am

Course Overview: Why are we here?

How do economists think about the environment? How can economics help society determine how best to decrease the amount of greenhouse gases we emit? Economics is the study of how to allocate scarce resources. When we include environmental amenities in our definition of scarce resources, we can begin to analyze environmental problems though an economic lens. Economics can help us to reduce pollution at a minimal cost to society. In this course we will explore the way economists think about the environment by examining current public policy questions as well as by examining how economics has influenced past policy and and the outcomes of those policies. You will learn individually about one particular problem in depth and think about how economic principles can be applied to that issue.

Learning Objectives:

In this course you will:

1. Develop critical thinking and analytical skills by reading and assessing arguments for and against particular environmental policies.
2. Identify situations where and the reasons why there is market failure and how government can help alleviate the problem.
3. Describe how economic and empirical methods can help define and implement environmental goals.

Required Texts

The course will use two textbooks that you will need to purchase.

(BH) Berck, Peter and Gloria Helfand, *The Economics of the Environment, First Edition*, Addison-Wesley, 2011.

(RFF) Oates, Wallace E. (Ed.), *The RFF Reader in Environmental and Resource Policy: Second Edition*, Resources for the Future, 2006.

Instructional Methods

[1]This is the preliminary version of the syllabus and may be changed during the semester to accommodate changes in the course.

This class will be partly lecture based, but we will also work in small groups and have large class discussions. Any assigned readings that are not in the textbooks (Berck and RFF) will be posted to the website.

Assignments

Problem Sets: There will be a few problem sets throughout the course. The purpose of these problem sets is to help cement the theoretical economic foundations underlying the models we will discuss in class. You are welcome to work on problem sets with your classmates, but I expect everyone to write up their own set of solutions to each assignment. Writing up your own solution set will help ensure that you understand the concepts. If you do work with classmates on assignments, please make a note of who you worked with at the top of your assignment.

Current Issues Analysis: Topics that are related to environmental economics are almost constantly in the news. Since one of the goals of this class is to encourage you to think about current events as an environmental economist would, four times during the semester you will need to find a recent newspaper article that has an environmental economics aspect to the subject. After you read the article, then write a one page analysis of the article including a brief summary (1 paragraph) of the article and then discuss how the topics covered in this course relate to the news article.

Research Paper: Choose a specific environmental problem that is of interest to you. Describe how the concepts you have learned in this course relate to the problem and if appropriate discuss alternative solutions to the problem you have chosen along with the benefits and drawbacks of each solution. Be sure study the problem in its local, national, and/or global context. This paper should be 8-10 pages double spaced. More information about the assignment will be distributed later in the course.

Class Debates: There will be formal class debates in the second half of the semester. You and one or two of your classmates will be assigned to debate a current environmental topic with another group of classmates. You will have an opportunity to rank your debate topic preferences and I will make all efforts to match you with your preferred topic. I will then assign you to a side of the debate that you must defend, through short presentations to the class and rebuttal to your opponents' argument. After the debate, your classmates will vote on which side was most convincing and the winning side will receive extra credit points. More information about the assignment will be distributed later in the semester.

Debate Paper: In addition to your verbal presentation for the class debates, your group will need to write a 3-4 page, double spaced position paper defending your side of the debate. This paper will help you organize your thoughts for the in class debate. The paper needs to be turned in prior to the debate.

Grading

Your course grade will be based on these components:

Problem Sets	10%
Current Issues Analysis	10%
Research Paper	20%
Class Debate	15%
Debate Paper	5%
Midterm Exam	15%
Final Exam	20%
Class Participation	5%

All assignments that are submitted after the due date will be penalized one grade per day (A to B, etc.).

Attendance and Participation

You are expected to attend all class sessions and be prepared to discuss the readings that have been assigned for that day. Class will be much more interesting and engaging if everyone has done the readings. Moreover, since a portion of the class is discussion-based, you will be a detriment to other students in the class if you have not completed the readings. Though the reading list may look long for some days, most chapters in the RFF book are only 4-5 pages. I have tried to keep the reading amount spread as evenly as possible across classes.

Exams

There will be two exams, approximately halfway through the term and one at the end of the term. Both exams will consist of analytical problems, short answer questions, and essay questions. The exams will cover the assigned material from both textbooks and from any supplementary readings. The final exam will cover material from the entire semester but will focus more heavily on the material covered since the first exam. Make-up exams will not be given except with the approval of the Dean of Students. If you have an emergency, please let me know immediately to make alternative arrangements.

Honor Code and Plagiarism

You are expected to follow the Georgia Institute of Technology Honor Code at all times. As mentioned above, you are allowed to collaborate with your fellow classmates on the homework and studying for exams. However, exams are an individual endeavor and you may not consult any outside information sources (other students, textbooks, notes, etc.) except as noted on the exam. For any questions involving these or any other Academic Honor Code issues, please consult me or `http://www.honor.gatech.edu`.

All research used in the preparation of your papers **must** be cited,[2] whether it is quoted directly or

[2] All sources that are used for the debate must be cited in the accompanying paper and on any slides that you wish to prepare.

paraphrased. Failure to do so is plagiarism and is a violation of university policy that will result in a severe penalty.

Email Policy

Substantiative questions are best asked in person during my office hours and will typically not be answered over email. However, you should feel free to email about clarifications and minor questions. I will do my best to answer your email within 48 hours (and hopefully sooner). It is your responsibility to ensure that you are regularly checking your email for class announcements.

Special Accommodations

If you need any special accommodations to due to a physical or learning disability, please let me know during the first week of class. In order to receive the requested accommodations you will need to obtain a form from the Access Disabled Assistance Program for Tech Students (ADAPTS) and give me this form. The ADAPTS Office is located in the Smithgall Student Services Building, Suite 220 and the website is `http://www.adapts.gatech.edu/index.html`.

Also, if you will be missing any classes for religious holidays or other events, let me know as soon as you know you will be missing class. You will still be required to know the material from that class period.

Important Dates

February 7	Current Issues Analysis I Due
February 23	Current Issues Analysis II Due
March 6	Midterm Exam
March 13	Current Issues Analysis III Due
April 3	Current Issues Analysis IV Due
April 17, 19, 24	In-class Debates
May 3	Final Exam

Keys to Success

- Watching people solve analytical problems helps your performance on exams as much as watching gymnastics helps you become a better gymnast. Practice all of the analytical problems multiple times.
- Engage with all of the readings before class and come prepared to discuss what you have read.
- Come talk to me about your research papers and debate assignments.
- Begin work on your research papers and debate assignments early. These are major portions of your grade and it is unlikely that you will be able to put together a high quality paper at the last minute.

Preliminary Class Schedule[3]

Thursday, January 12
(RFF) An Economic Perspective on Environmental and Resource Management: An Introduction
Chapter 50: An Historical Perspective
(BH) Chapter 1: Introduction
Chapter 2: Economic Efficiency and Markets

Tuesday, January 17
(RFF) Chapter 1:What Science Says: How We Use It and Abuse It to Make Health and Environmental Policy
Chapter 2: Using Science Soundly: The Yucca Mountain Standard
Chapter 3: Economics Clarifies Choices about Managing Risk

Thursday, January 19
(RFF) Chapter 9: Market Based Approaches to Environmental Policy
Chapter 10: Trading Cases: Five Examples of the Use of Markets in Environmental and Resource Management
(BH) Chapter 3: Government Intervention and Market Failure

Tuesday, January 24
(BH) Chapter 8: From Production to Pollution

Thursday, January 26
(BH) Chapter 9: Production, Pollution, Output, and Prices

Tuesday, January 31
(RFF) Chapter 13: Penny-Wise and Pound-Fuelish? New Car Mileage Standards in the United States
Chapter 14: Is Gasoline Undertaxed in the United States?
(BH) Chapter 4: Consumer Behavior and the Environment

Thursday, February 2
(BH) Chapter 5: Measuring Benefits to Consumers

Tuesday, February 7
(BH) Chapter 6: Revealed Preference Methods

Thursday, February 9
(BH) Chapter 7: Stated Preference Methods

[3]This is a preliminary schedule and is subject to change.

Tuesday, February 14
(BH) Chapter 10: Maximizing Net Benefits in the Presence of Externalities

Thursday, February 16
Tradable Discharge Permit Game

Tuesday, February 21
(BH) Chapter 11: Private Markets and the Environment: The Coase Theorem

Thursday, February 23
(RFF) Chapter 19: Environmental Federalism
(BH) Chapter 12: Government Polices for Environmental Protection

Tuesday, February 28
(RFF) Chapter 11: Economic Incentives Versus Command and Control
Chapter 12: Unleashing the Clean Water Act: The Promise and Challenge of the TMDL Approach to Water Quality

Thursday, March 1
Review day

Tuesday, March 6 - MIDTERM EXAM

Thursday, March 8
(RFF) Chapter 20: The Arsenic Rule: A Case for Decentralized Standard Setting?
Chapter 21: The Interstate Transport of Air Pollution: A Regulatory Dilemma
(BH) Chapter 13: Enforcement and Political Economy

Tuesday, March 13
Regulation Game

Thursday, March 15 - No Class
Compensation for Monday, April 16 class

Tuesday, March 20 - SPRING BREAK

Thursday, March 22 - SPRING BREAK

Tuesday, March 27
(RFF) Chapter 5: Discounting the Future: Economics and Ethics
Chapter 6: Time and Money: Discounting's Problematic Allure
(BH) Chapter 14: The Time Factor: Discounting

Thursday, March 29
(RFF) Chapter 7: How Much Will People Pay for Longevity?
Chapter 8: The Faustian Bargain: Risk, Ethics, and Nuclear Energy
(BH) Chapter 15: Benefit-Cost Analysis

Tuesday, April 3
(BH) Chapter 16: Nonrenewable Resource Management

Thursday, April 5
(RFF) Chapter 30: Setting Energy Policy in the Modern Era: Tough Challenges Lie Ahead
Chapter 31: Petroleum: Energy Independence is Unrealistic
Chapter 32: Coal: Dirty Cheap Energy
Chapter 33: Nuclear Power: Clean, Costly, and Controversial
Chapter 34: Renewable Sources of Electricity: Safe Bet or Tilting at Windmills?
Chapter 35: The Effectiveness and Cost of Energy Efficiency Programs
Planet Money Podcast
Posted to T-Square
Appalachian Coal Mining Video
`http://www.economist.com/blogs/democracyinamerica/2012/02/coal`

Tuesday, April 10
(RFF) Chapter 23: Catching Market Efficiencies: Quota-Based Fisheries Management
Chapter 25: Ecosystem Management: An Uncharted Path for Public Forests
Chapter 27: A Market Approach to Land Preservation
(BH) Chapter 17: Renewable Resource Management

Thursday, April 12 - Guest Lecture
(BH) Chapter 18: Economic Growth and the Environment

Monday, April 16 - Climate Change Game
NOTE TIME, DATE AND LOCATION CHANGE
5-8pm, Old CE G10

Tuesday, April 17 - DEBATE DAY 1

Thursday, April 19 - DEBATE DAY 2

Tuesday, April 24

(RFF) Chapter 36: Climate Change and Climate Policy
Chapter 37: How Much Climate Change is Too Much?
Chapter 38: Choosing Price or Quantity Controls for Greenhouse Gases
Chapter 39: Rethinking Fossil Fuels: The Necessary Step Toward Practical Climate Policy
Chapter 40: Forest "Sinks" as a Tool for Climate-Change Policymaking

Thursday, April 26

(RFF) Chapter 41: The Difficulty in Defining Sustainability
Chapter 42: An Almost Practical Step Toward Sustainability
Chapter 45: Saving the Trees by Helping the Poor: A Look at Small Producers along Brazil's Transamazon Highway
Chapter 47: New Investment Abroad: Can It Reduce Chinese Greenhouse Gas Emissions
(BH) Chapter 19: Sustainability

Thursday, May 3 - FINAL EXAM
Exam time: 11.30am - 2.20pm