

ARE 336: RESOURCE AND ENVIRONMENTAL ECONOMICS

Fall 2013 TR 10:15-11:30 125 Kilgore Hall

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Course Website: **<https://wolfware.ncsu.edu/>**

Office Hours: **MW 10:00-11:00** or by email appointment

Prerequisites

EC/ARE 201 or EC205

Course Description

The focus of this course is the application of basic economic tools to understand and evaluate environmental and resource policies. The course will introduce concepts such as externalities, property rights, non-market goods, allocation over time, and public goods. We will use the economic foundation developed in this course to discuss current policy issues including global climate change, evaluation of natural resource damages from oil spills, reducing the costs of regulations, protecting fisheries, and dealing with non-point source pollution.

Course Objectives

In this course, you will learn techniques and concepts in the economic analysis of environmental problems. The objectives for this course are to:

- Recognize how economics can inform and improve environmental policy
- Apply principles of economics to the environment
- Understand the concepts of market equilibrium, market failure, and externalities
- Analyze environmental issues within a graphical economic modeling framework
- Compare and evaluate the effectiveness of alternative policy solutions to environmental problems
- Increase your ability to define environmental problems and analyze information

Required Text

Markets and the Environment (2007)

Authors: Nathaniel Keohane and Sheila Olmstead (Island Press, Washington, DC).

New copies are available at the NCSU bookstore and Amazon for under \$20 with used copies even cheaper. Lectures and discussion in class use this textbook as a foundation; however, the book does not contain ALL the material needed to master this course. Lecture notes and

additional readings will contain more information than the textbook and you are responsible for this material as well. All additional required readings will be posted as PDF files on the course's Moodle site.

Please note: Assigned readings are essential to your success in this course.

Evaluation

The work required for this class is based on 500 points.
Your final grade will depend on the following:

- Mid-term exam #1 100 points (20%)
- Mid-term exam #2 100 points (20%)
- Final Exam (cumulative) 150 points (30%)
- Five problem sets (20 points each) 100 points (20%)
- In-class assignments/Pop-quizzes (5 points each) 50 points (10%)

You should not miss any exams. No programmable calculators or cell phones will be allowed during exams. **Makeup exams are given only under extraordinary circumstances.** The following must occur in order for a makeup exam to be administered: (1) you must contact me **prior** to the exam to let me know you will not be attending and the reason why; (2) the makeup exam must be taken before the in-class exam is returned to students (i.e., within 48 hours); and (3) a written excuse from a doctor or the University Counseling Center must be presented (and this will be verified by a follow-up phone call). **You may not miss or reschedule the final exam under any circumstances.**

Problem sets are **due at the beginning of class** on the dates specified below. **LATE ASSIGNMENTS WILL NOT BE ACCEPTED.** In other words, do not try to hand in assignments late and expect partial credit...it won't happen. I encourage you to work with your fellow classmates on these assignments, but **you must turn in your own work.** It is in your best interest to show all of your work on these assignments. For example, if the answer is 5 and all you write down is 4, you lose all points for that problem. But if you show your work and I can see that you understood the problem but made a simple math mistake, you will still receive nearly full credit. All problem sets are required to be **stapled** together. This prevents the possibility of losing pages and makes grading much easier. **Two points** will be deducted if an assignment is unstapled. University policies on make-up work and attendance policy are located here: <http://policies.ncsu.edu/regulation/reg-02-20-03>

All of the following dates are subject to minor changes if we get behind on material with the exception of the final exam:

Exam Dates

Mid-term exam #1	Thursday, September 26th
Mid-term exam #2	Tuesday, November 5th
Final Exam	Tuesday, December 10th, 8:00-11:00 a.m.

Problem Set Due Dates

Problem Set #1	Tuesday, September 10th
Problem Set #2	Tuesday, September 24th
Problem Set #3	Tuesday, October 15th
Problem Set #4	Tuesday, October 29th
Problem Set #5	Thursday, November 14th

In-Class Assignments/Quizzes

Ten (10) In-Class Assignments/Quizzes will be given at random throughout the semester. Some will be individual efforts while others will be done in groups of 4-5 people. No makeups for in-class assignments will be given.

Please note: I DO NOT offer extra credit opportunities on an individual basis, so please do not ask. If you are struggling with the course material, make the effort to come see me sooner rather than later.

Course Policies

I have scheduled open office hours each week and I am also available by appointment subject to my availability. **Individual office visits may be one of the most productive parts of the course for you if you are struggling with the material.** Don't forget...I am here to help.

Class attendance is not required; however, you are responsible for all material covered in class, regardless of whether you decide to attend. **I DO NOT** give out copies of my notes. If you miss a class, you will need to get the notes from a classmate. Additionally, unscheduled in-class assignments/pop-quizzes will be given throughout the semester so unexcused absences have the potential to harm your final grade.

In terms of classroom etiquette, I have a couple very simple rules: Please turn your cell phones, iPads, and all other electronic devices off and keep them off of your desk. You will not need any of these devices during class. If you physically need to use a laptop for taking notes, please see me to discuss this. I expect you to engage in class – or at the very least, you should not be a distraction by being rude. If you cannot follow these two basic rules, you will be asked to leave.

General Course Outline

This is a general course outline and subject to additions and subtractions. Please reference the Moodle site for the reading list and assignments. “KO” in the outline below refers to the required text. All other reading are available as PDF files on the Moodle site. You will need Adobe Reader to access the readings. If you do not have this program, you can download it for free here: <http://get.adobe.com/reader/>

Section 1: What is Environmental Economics?

KO: Preface and Chapter 1
Fuller & Stavins Article
Rescuing Environmentalism – *Economist* Article

Section 2: How Markets Work

KO: Chapter 4
Tietenberg PDF

Section 3: Externalities

KO: Chapter 5, pp 65-70.
Harris PDF
Is Gasoline Under-Taxed in the United States?
Freakanomics Article

Section 4: Special Topics – Energy & Gasoline

Department of Energy Annual Energy Review

Section 5: Pollution Control Model

KO: Chapter 2, pages 11-27

Section 6: Public Solutions to Externalities: Standards, Taxes and Permits

KO: Chapter 8, pages 129-152
KO: Chapter 9
KO: Chapter 10
Cap and Trade in California
Ian Parry Article

Section 7: Special Topics - Climate Change

Climate Science: What we know

Section 8: Private Solutions to Externalities: The Coase Theorem

KO: Chapter 8, pp. 126-129
California Solar Shade Law

Section 9: Benefit-Cost Analysis

KO: Chapter 2, pp. 28-30
KO: Chapter 3, pp. 43-53
Boardman PDF
Goulder & Stavins Article

Section 10: Non-Market Valuation

KO: Chapter 3 pp. 31-43
Non-market valuation website
Exxon Valdez CV Study
Portney Article
Value of a Statistical Life article

Section 11: Special Topics - Hydraulic Fracturing

Two Hedonic studies of Hydraulic Fracturing in Pennsylvania
The Economic Impact of Shale Gas Extraction
Regulation Hydraulic Fracturing in Shale Gas Plays

Section 12: Public Goods

KO: Chapter 5, pages 70-76.

Section 13: Open Access Resources

KO: Chapter 5, pages 76-83.
Tragedy of the Commons Article

Section 14: Natural Resource Extraction

KO: Chapter 6

Section 15: Special Topics - Fisheries

World's Fish Supply Running Out?
Impacts of Biodiversity Loss on Ocean Ecosystem Services

Academic Integrity

Students are required to comply with the university policy on academic integrity found in the Code of Student Conduct found at <http://policies.ncsu.edu/policy/pol-11-35-01>

All NCSU students are expected to abide by the following Honor Pledge: "I have neither given nor received unauthorized aid on this test or assignment." It will be my understanding and expectation that your signature on any test or assignment means that you have abided by this pledge.

Class Evaluations

Online class evaluations will be available for students to complete during the last 2 weeks of the semester and become unavailable before finals. They open November 19th @ 12 noon and close December 9th @ 8:00 am. Students will receive an email message directing them to a website where they can login using their Unity ID and complete evaluations. All evaluations are confidential; instructors will not know how any one student responded to any question, and students will not know the ratings for any instructors.

Evaluation website: <https://classeval.ncsu.edu/>

Student help desk: classeval@ncsu.edu

More information about ClassEval: <http://www.ncsu.edu/UPA/classeval/>

Accommodations for Disabilities

Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, student must register with the Disability Services Office (<http://www.ncsu.edu/dso>) located at 1900 Student Health Center, Campus Box 7509, 515-7653. For more information on NC State's policy on working with students with disabilities, please see the Academic Accommodations for Students with Disabilities Regulation at: <http://policies.ncsu.edu/regulation/reg-02-20-01>

Non-Discrimination Policy

NC State University provides equality of opportunity in education and employment for all students and employees. Accordingly, NC State affirms its commitment to maintain a work environment for all employees and an academic environment for all students that is free from all forms of discrimination. Discrimination based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation is a violation of state and federal law and/or NC State University policy and will not be tolerated. Harassment of any person (either in the form of quid pro quo or creation of a hostile environment) based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation also is a violation of state and federal law and/or NC State University policy and will not be tolerated. Retaliation against any person who complains about discrimination is also prohibited. NC State's policies and regulations covering discrimination, harassment, and retaliation may be accessed at <http://policies.ncsu.edu/> or <http://oied.ncsu.edu/oied/>. Any person who feels that he or she has been the subject of prohibited discrimination, harassment, or retaliation should contact the Office for Equal Opportunity (OEO) at 515-3148.