

ECON 4440 SYLLABUS

Economics of the Environment, 3 Credits
Monday-Thursday 9:30am-11:40am

INSTRUCTOR

Anthony Harding

EMAIL

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OFFICE HOURS

Fridays 10am-12pm or by
appointment

GENERAL INFORMATION

Course Description

Environmental issues are becoming increasingly apparent in the 21st century. The integration of economic and environmental systems places economists in a unique position to analyze these issues. This course will provide you with an introduction to how economists think about and mitigate environmental issues. Through a mixture of discussion and problem-solving, we will learn about key environmental issues, such as climate change, resource management, and pollution control. Together we will apply an economic lens to break down real world observations as well as identify possible policy interventions and their impact.

During class, we will cover foundational topics and discuss their application to current events. Outside of class, you are expected to review the literature and practice problem solving by applying the topics discussed in class. By the conclusion of the course, you should be able to describe key environmental issues through the lens of an economist, prescribe potential policy interventions, and explain its impact.

Course Goals and Learning Outcomes

By the end of this course, you will be able to...

1. Explain and analyze the socially optimal level of environmental quality
 - a. Calculate efficient market outcomes
 - b. Assess methods for non-market valuation
2. Explain and analyze sources of market failure around environmental issues
 - a. Explain externalities, public goods, and common pool resources
 - b. Explain market failure for depletable and renewable resources
3. Prescribe and assess policy interventions for market failures around environment
 - a. Evaluate private interventions
 - b. Evaluate and compare public interventions
4. Explain and analyze environmental policy applications
 - a. Analyze green growth and international environmental policy
 - b. Describe and explain key problems around climate change

Prerequisites

An understanding of the principles of microeconomics is a prerequisite for this course. For this course, I will assume that you recall the important concepts, such as supply and demand, market equilibrium, surplus, opportunity cost, etc. I will not take time to review these concepts, especially given the short format of the short summer sessions, so I recommend reviewing these topics in the first week if you need to brush up on the material.

COURSE MATERIALS

Required Text: *Markets and the Environment*, 2nd ed. by Keohane and Olmstead, Island Press, Washington, DC.

Availability: The course text can be purchased online or through the bookstore. I've selected this text because of its affordability. However, the tradeoff is in completeness. The material in the text will be supplemented with additional readings and lecture notes.

Course website: All course material will be distributed and managed on Canvas. It is important that you check the announcements regularly, as this is my primary method of communication given the online nature of the course.

Optional Supplementary Resources: *Environmental and Natural Resource Economics* (10th Edition) by Tietenberg and Lewis. This is a commonly used undergraduate textbook and a good alternative resource.

Environmental Economics (2nd Edition) by Kolstad. This is a commonly used undergraduate textbook and a good alternative resource.

Marginal Revolution University, <https://mru.org/>. Marginal Revolution University provides free and excellent supplementary text and video resources. If you are struggling with microeconomic concepts, I recommend using this resource to brush up.

COURSE Assignments + GRADING

Course Assignments

Assignment	Dates	Weight (Percentage)	Description
Homework	Weekly	30% (6% each)	Due Fridays at Midnight
Attendance	Daily	10% (~0.5% each)	Due by midnight next day
Analysis Essays	6/29, 7/6, 7/13, 7/22	20% (5% each)	One page summary and analysis
Quizzes (x4)	6/22, 6/29, 7/13, 7/20	20% (5% each)	30 minutes
Exams (x2)	7/6, 7/29	20% (10% each)	1 Hour 50 minutes

Description of Graded Components

Homework: There will be one problem set assigned each week. Each assignment will assess the material introduced in class that week and will be due by Friday at midnight the week it is assigned. For example, after Week 1, Homework 1 will assess your understanding of the topics covered in the first 2 classes and will be due on Friday, June 19, at 11:59pm. This is to give me time to provide feedback before higher stakes assessments.

Analysis essays: One-page (500 word) summary and analysis of the assigned materials. Analysis essays are due the Monday after they are assigned by the start of the listed class time (9:30am). Essays will be graded according to the rubric supplied with the assignment.

Quizzes: 30 minute assessment of material covered since the last quiz or exam. Quizzes are administered through Canvas and are open for a 24 hour window on the day of the quiz. Once you start the quiz you will have 30 mins to complete it. Quizzes are open book/note.

Exams: 1 hour and 50 minute assessment. Exams will be administered through Canvas and will be open for a 24 hour window on the day of the exam. Once you begin the exam you will have 1 hour and 50 minutes to complete it. The first (midterm) exam covers material from the first half of the class. The second (final) exam is cumulative. Exams are open book/note.

Attendance: To get full points for attendance, you are required to submit your own responses for the in-class activity each class on Canvas by midnight the day after the class. For example, the attendance assignment for the class on Thursday 7/18 is due by 11:59pm on Friday 7/19.

Office Hours

Office hours will be on Fridays 10am-12pm or by appointment. They will be held on a BlueJeans conference call that can be accessed at <https://bluejeans.com/2497063028/>.

During office hours, I will also monitor the Office Hours discussion board on Canvas. I encourage everyone to take advantage of my office hours. I'm here to help. If you can, please come with questions prepared. Additionally, prepared questions can be posted to the Office Hours discussion board at any time during the week. I will try to respond to posts when I can or during the subsequent designated office hours time.

Grading Scale

Your final grade will be assigned as a letter grade according to the following scale. Grades of C or higher are considered a pass for students taking the course pass/fail.

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	0-59%

COURSE SCHEDULE

The following is an outline of the schedule for this course. The timing of the material is subject to change but the exam and assignment dates will remain fixed.

Class #	Date	Topic	Reading, notes
1	6/17	Introduction	KO Ch. 1, Fullerton and Stavins, "Welcome to the Anthropocene"
2	6/18	Efficiency	KO Ch. 2, EPA - Discount Rates
3	6/22	Benefits	Quiz 1, KO Ch. 3, Paul et al. (2020)
4	6/23	Benefits	KO Ch. 3, NPS
5	6/24	Benefits	KO Ch. 3, Cameron (2010), Carson (2000)
6	6/25	Costs	KO Ch. 3, RFF (2018)
7	6/29	BCA	AE 1 Due, Quiz 2, KO Ch. 3, MATS CS
8	6/30	Market Failure	KO Ch. 4/5, "The hidden cost of congestion"
9	7/1	Depletable Resources	KO Ch. 6, "Peak Oil Debate", "It takes a crisis"
10	7/2	Renewable Resources	KO Ch. 7, "Less Deadly Catch", "Getting Serious about Overfishing"
11	7/6	Midterm	AE 2 Due
12	7/7	Coase Theorem	KO Ch. 8, NYT - Cheshire, Emoticons
13	7/8	Public Solutions	KO Ch. 8
14	7/9	Public Solutions	KO Ch. 9
15	7/13	Public Solutions	AE 3 Due, Quiz 3, KO Ch. 10
16	7/14	Green Growth	KO Ch. 11
17	7/15	Climate Change	Putting Goldilocks to Work
18	7/16	Climate Change	Fighting Climate Change
19	7/20	Energy Transitions	Quiz 4, Not-so-slow burn
20	7/21	Wrap-up	
	7/29	Final Exam	

COURSE EXPECTATIONS & GUIDELINES

Attendance

Class participation and discussion is an integral part of the learning process, especially for this course. To encourage participation, attendance is required and represents a portion of the final grade. Full points for attendance will be given for submitting in-class activities.

Extra Credit Opportunities

There will be NO extra credit assignments or bonus points. Course grades will not be curved.

Collaboration & Group Work

Collaboration in the learning process is encouraged. Students are permitted to work together on homework, however, each student must submit their own assignments.

Email Policy

I encourage students to contact me with their questions and expect frequent contact. To facilitate response in a timely manner, below are guidelines for sending me emails. If you have not received a response within 24 hours of your email, please make sure you have followed the guidelines below and send a follow-up email.

1. Start the subject line of the email with "[ECON-4440]"
2. Include your full name in the body of the email

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. For information on Georgia Tech's Honor Code, please visit <http://www.catalog.gatech.edu/policies/honor-code/> or <http://www.catalog.gatech.edu/rules/18/>.

Any student suspected of cheating or plagiarizing on a quiz, exam, or assignment will be reported to the Office of Student Integrity, which will investigate the incident and identify the appropriate penalty for violations.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services at (404)894-2563 or <http://disabilityservices.gatech.edu/>, as soon as possible, to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Extensions, Late Assignments, & Re-Scheduled/Missed Exams

Make-up exams will be given only for documented reasons of illness, family emergency, or participation in approved Institute activities (such as field trips and athletic events, see <http://catalog.gatech.edu/rules/12/> for more information). Late assignments will not be accepted and no extensions will be given except for reasons consistent with those stated above.

Student-Faculty Expectations Agreement

At Georgia Tech we believe that it is important to strive for an atmosphere of mutual respect, acknowledgment, and responsibility between faculty members and the student body. See <http://www.catalog.gatech.edu/rules/22/> for an articulation of some basic expectation that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

Cell Phones, Laptops, and Related Technology

In this class, we will be using TurningPoint to track attendance and allow the instructor to receive feedback on students' learning. This means you will need to bring a (charged) web-enabled device with you to class – a smartphone, tablet, laptop, or other similar devices will do. However, use of these devices outside of the designated times is prohibited. Please remember that your success in this class will hinge in part on your attention to in-class discussion and content. If your use of electronic devices causes a disturbance you will be asked to leave. incidents may result in a reduction of the final grade.

Food and Drink

Food and drink are permitted, but be respectful of the others in the classroom. If it becomes distracting to those around others, you will be asked to either put it away or take it outside the classroom.

CAMPUS RESOURCES FOR STUDENTS

Georgia Tech provides a variety of resources around campus to support students and their learning. These include resources such as The Counseling Center, The Communication Center, and The Center for Academic Success.

See http://ctl.gatech.edu/sites/default/files/documents/campus_resources_students.pdf for a list of relevant campus resources available to Georgia Tech students.

Note

This syllabus is subject to change as the semester progresses if it will enhance the student learning and the overall quality of the course. (Syllabus v1.0: 7/12/2020)