Georgetown University

Environmental Economics
Economics 475
Fall 2022 – Syllabus
Monday and Wednesday
5:00pm - 6:15pm in Car Barn 204

INSTRUCTOR INFO

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COURSE DESCRIPTION

This course will cover advanced theory and applications underlying environmental economics and examples from real-world scenarios. The foundations of microeconomic theory lie in the decisions of consumers and producers, but these decisions are often made under incomplete information or incomplete markets. We will first build an understanding of how markets fail, then continue with methods frequently used to measure these failures, and then we conclude with policy tools that are designed to correct the markets. The course relies on published literature for case studies and replication of approaches (done in the R programming language). The goal of this course is to establish a good understanding of environmental-economic issues and start to build a tool kit such that you will leave with the ability to contribute to discussions related to environmental policy by using economic theory and empirical methods.

LEARNING OBJECTIVES

LO 1. Explain the theoretical foundation of environmental economics.
LO 2. Identify several methods used to measure environmental benefits.
LO 3. Propose a method that could be used to correct a specific market failure.
LO 4. Describe the history of environmental policy and its outcomes.
LO 5. Assess the efficiency and unintended consequences of an environmental policy.

CONTACTING US

We will make class announcements and provide additional information to students through email (using your university email address). You can expect that we will respond to your emails within 48 hours. Office hours will be conducted virtually and must be arranged via email ahead of time.

COURSE MATERIALS

Textbook: Markets and the Environment; Keohane and Olmstead (K&O)
eTextbook: $28.99 ; *Paperback (used)* $9.95 – Amazon link here

We have carefully chosen a book that we believe does an excellent job of covering the underlying theory that will be discussed in this course at the best price we could find. This is the only required purchase for this course! The book will serve as a critical foundation for the topics we will cover, and it will not be possible to complete the course without it (or without reading it!). Other GU instructors have also used this book, so reach out to other students if needed, either edition (first/second) will work great! Please have the book available by the second week of classes.

The rest of the material will be distributed through the course website (Canvas). Things that will be posted include, but are not limited to, additional readings, videos, podcasts, homework assignments, and grades.

Recommended books for the interested reader. Not required and will not be used *directly* in the course, but the topics will be discussed. This is a list of books that we (your instructors) enjoyed reading and believe serve as great complements and extensions to the material we do cover. Read throughout the semester, or after:

1. The Spirit of Green: The Economics of Collisions and Contagions in a Crowded World, by Bill Nordhaus (Nobel Prize in Economics, 2018)
2. Small Is Beautiful: Economics as if People Mattered, by Ed Schumacher
3. Governing the Commons, by Elinor Ostrom (Nobel Prize in Economics 2009)
4. Toxic Communities, by Dorceta Taylor

GRADES

Grading will be three part:

1)	Reflection Posts and Case Studies	25%
2)	Midterms (two)	25% each (50% total)
3)	Final Exam	25%

Your final grade will be the maximum of the averages of:

(1) + (2) *or* (1) + (3) *or* (1) + (2) + (3)

This means that if you do better (on average) on your midterms than on the final, your final will be dropped—and vice versa. **NOTE:** Reflection Posts and Case Studies will not be dropped.

Letter grades are as follows and are rounded to the nearest integer (i.e., 0.495 becomes 1):

A+ (95-100),	A (87-94),	A- (85-86),
B+ (82-84),	B (77-81),	B- (75-76),
C+ (72-74),	C (67-71),	C- (65-66),
D+ (62-64),	D (57-61),	D- (55-56),

F (0-55) – don't do this

ACCOMMODATIONS

Any student who feels that they may require an accommodation in this course, based on the impact of a disability, should contact us as soon as possible to arrange for a meeting to coordinate all accommodations. Any student who wishes to seek accommodation should also be sure to directly contact Disability Support Services (DSS) for more information (*https://academicsupport.georgetown.edu/disability*).

COURSE CALENDAR

Readings and Videos: These are to be completed *before* class on the day they are listed. For example, K&O Ch. 2-3 should be read before coming to class on August 29th.

Homework: All homework assignments are due by Sunday at midnight on the week or the week after they are listed. One exception is Case Study #4, which is due on a Monday to accommodate Thanksgiving break.

Midterms: Midterms will be on the Wednesday class of the week that they are listed.

Week	Date	Topic	Readings/Videos	Exams/ Homework
Module 1: How Markets Fail				
1	Aug 24	Recap of Economic Theory, Markets, and Willingness to Pay		Buy Textbook K & O: Ch. 1
2	Aug 29	Why Aren't Markets Perfect?	K & O: Ch. 2-3 Hausman Video	
2	Aug 31	Market Failures: Examples and in Practice	K & O: Ch. 4-5 Auffhammer Video	
3	Sep 6* (Tues)	Positive vs. Normative methods and their role in Environmental Economics	McGartland (2021) Cook (2022)	Ref. Post #1 on Podcast #1 or Podcast #2 (Due Sep 10)
Module 2: Measuring Environmental Benefits				
3	Sep 7	Econometrics, Treatment Effects, and their place in Environmental Economics	First 10 min of Olmstead Video	
4	Sep 12	Using Distance to Measure the Value of Public Land and Open Space (Travel Cost)	Hanauer and Reid (2017)	Case Study #1 Travel Cost or Hedonics (Due Sep 24)
4	Sep 14	Voting with Your Feet – and Why it Doesn't Always Work (Hedonics)	Kuwayama et al. (2022) and quickly read: Christensen and Timmins (2022)	
5	Sep 19	Constructing Hypothetical Markets when They Don't Exist (Stated Preferences)	Parthum and Ando (2020)	
5	Sep 21	Using Expenditures to Estimate Benefits of the Environment (Defensive Behavior)	Shogren and Stamland (2005)	
6	Sep 26	How Can We Estimate the Total Damages from Climate Change?	Nordhaus (2017)	Case Study #2 DICE 2016 (Due Oct 9)
6	Sep 28	Incorporating the Environment into Economic Accounts (Natural Capital)	K & O: Ch. 11 Solow Monograph	
7	Oct 3	Review of Modules 1 and 2	Study Review Material	
7	Oct 5	Midterm Covering Material from Modules 1 and 2	Study!	**Midterm #1**

Week	Date	Topic	Readings/Videos	Exams/ Homework
Module 3: Environmental Policy and Regulation				
8	Oct 10	Mid-semester Holiday – No Class		
8	Oct 12	Economics of Environmental Regulation 1	K & O: Ch. 8	
9	Oct 17	Economics of Environmental Regulation 2	K & O: Ch. 9 Carbon Trading Podcast	
9	Oct 19	Clean Air Act	Hernandez-Cortes et al. (2022) (*optional*) Chay and Greenstone (2005)	Ref. Post #2 (Due Oct 23)
10	Oct 24	Clean Water Act	Keiser and Shapiro (2019)	
10	Oct 26	Safe Drinking Water Act	Allaire et al. (2018) Fedinick et al. (2022)	Case Study #3 – PFAS NPDWR (Due Nov 6)
11	Oct 31	Hazardous Wastes – CERCLA and RCRA	Hazardous Chemical Waste Video	
11	Nov 2	Regulating Cars	Killeen and Levinson (2017) Transportation Justice Podcast	
12	Nov 7	Review of Module 3	Study Review Material	
12	Nov 9	Midterm Covering Material from Module 3	Study!	**Midterm #2**
Module 4: The Frontier of Environmental Economics and Policy				
13	Nov 14	Environmental Justice Analysis in Regulation 1	Banzhaf et al. (2019) EJ Technical Guidance Ch. 2-4	
13	Nov 16	Environmental Justice Analysis in Regulation 2	Hernandez-Cortes and Meng (2020) (*optional*) Steam Electric ELG Ch. 14	Case Study #4 - Bivariate Mapping (Due Nov 28)
14	Nov 21	Market-based Instruments in Practice	K & O: Ch. 10 Borenstein and Kellogg (2022)	
14	Nov 23	No Class, Federal Holiday	No Class	
15	Nov 28	So, What's Next? Inflation Reduction Act, Bipartisan Infrastructure Law, and WV vs. EPA	K & O: Ch. 12 WV vs. EPA Video IRA Video	
15	Nov 30	Review of Module 1 and 2	Final Study Guide 1	
16	Dec 5	Review of Module 3 and 4	Final Study Guide 2	
16	Dec 10	FINALS WEEK - 4:00 PM-6:00 PM	Study!	**Final Exam**