ECON 335: Environmental Economics

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Spring 2024
George Mason University Korea

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Class Room: G304
Class Hours: Tue 9:00–11:40am
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Office Hours: M 12:00pm-1:45pm or by appointment

Course Description

ECON 335 is a major elective for ECON students and also fulfills Environment concentration for GLOA students. This course is also a "Green Leaf" course that focuses on learning about sustainability. The Green Leaf designation recognizes offerings that contribute significantly to students' understanding and practice of sustainability. Mason's Green Leaf curricula comprise both sustainability-focused and sustainability-related courses, and ECON 335 is a ***sustainability-focused*** course providing valuable grounding in the concepts and principles of sustainability. This course educates students about how different dimensions of sustainability relate to and support each other in theory and practice. In addition, this course helps equip students with the skills to weave together disparate components of sustainability in addressing complex issues.

This course provides an overview of environmental economics by introducing analytical methods and tools to analyze environmental problems and identify policy solutions. The first part of the course provides a microeconomic foundation of environmental economics, with a focus on market efficiency and market failures. The second part introduces environmental policy decision tools such as benefit-cost analysis and cost-effectiveness criterion. In particular, this part focuses on benefits estimation including revealed preference approaches and stated preference approaches. The third part discusses environmental regulation, with topics covering command-and-control regulation, market-based approaches, and behavioral interventions. The challenges of applying economic instruments to real world environmental problems will be also discussed, such as time and space, risk and uncertainty, compliance and enforcement, etc. This course is expected to stimulate critical thinking about environmental challenges and policy solutions.

Student Learning Outcomes

Students should be familiar with basic microeconomic concepts such as: supply and demand functions, consumer and producer surplus and deadweight loss, opportunity cost, marginal analysis, and time discounting. Students also need a working knowledge of calculus, including familiarity with partial differentiation. Students completing this course will be able to

- Demonstrate understanding of the economic cause of environmental problems, environmental valuation techniques, environmental policy instruments and their economic consequences, and environmental policy decision making tools
- Critically analyze the environmental policy practices in the real world using economics methods and tools
- Apply knowledge of environmental economics, including analytical tools and methods, to identify policy solutions that can correct environmental problems
- Engage in self-directed research and learning about environmental economics

Required Text

Kolstad, Charles D., ***Intermediate Environmental Economics*** (International Edition), 2011, 2nd edition, Oxford University Press, ISBN: 9780199732654

Optional Text

For those looking for additional textbooks to supplement the main topics or for more in-depth coverage to areas you might be interested in pursuing, you may wish to read:

- Tietenberg, Thomas H. and Lewis, Lynne, ***Environmental and Natural Resource Economics*** Environmental and Natural Resource Economics, 11th edition, 2018, ISBN 9781138632295
- Stavins, Robert N., ***Economics of the Environment Selected Readings***, 7th edition, 2019 ISBN: 9781788972079

Prerequisites

ECON 103 Microeconomic Principles (required), ECON 306 Intermediate Microeconomics (preferred)

Course Structure

This course will be taught through a combination of assigned readings, lecture, course project, and examinations. Class interaction allows the students to discover the strengths and weaknesses of alternative policy recommendations.

Assigned Readings

Textbook and other assigned readings present relevant topics, which will be covered more depthfully in class lecture. In class discussion of readings, instructor highlights most relevant reading topics and shows by example how to present data in a stimulating way, consistent with achieving course objectives.

Lecture

Lectures will be highly interactive. Instructor prompts students for response to questions posed and solicits his/her thoughts on issues discussed. Additionally, instructor provides concrete, real–world examples to illustrate concepts. Lecture format reinforces by example appropriate methods for asking questions, gaining relevant insights, and making appropriate recommendations.

Quizzes

To foster continuous engagement with the course content, two quizzes will be scheduled during the semester: one prior to the midterm and another before the final exam. These quizzes serve to encourage students to keep up with their readings and help ensure retention of key information. Each quiz will comprise approximately three to five questions. It should be noted that questions which are frequently answered incorrectly might be included again in future exams to reinforce learning.

Exams

Exams will be closed-book and be composed of true/false questions, multiple choice, essay questions, some calculations that test students' ability to apply concepts discussed through the exam date. Cheating and plagiarism will not be tolerated. Any violation of the Institute's Honor Code will be reported to the Dean of Students Office. Non–programmable calculators are allowed. You are not allowed to use smartphones and tablets as calculators. Hence, please don't forget to bring your regular calculator on exam days.

Course project: Research writing competition (Open divisions)

Students are required to submit a term paper to the GMUK Research Writing Competition (typically scheduled in late April) that articulates a research question, describes the contribution to the literature, outlines the data to be used, and proposes an empirical strategy. Preliminary results are not necessary, but add to the strength of the proposal. In weeks 2-3, students will give a brief 5–10 minute presentation on the idea. In weeks 6-9 students will deliver a research pitch in the form of an 'egg-timer': a 3 minute pitch of your idea. Extra credits will be awarded based on rank (1st place: +10pt; 2nd place: +7pt; 3rd place and DEI award: +5pt; finalists: +3pt)

Grading Policy

Students will be evaluated on the basis of problem sets, exams, course project, and attendance. These components will be weighted as follows:

- 20% Midterm exam
- 30% Final exam (comprehensive)
- 10% Two quizzes (5% each)
- 20% Course project and presentation
- 20% Attendance (–2% for each unexcused absence; –1% for lateness)

Based on the cumulative grade, final grade will be specified as:
A+ = 97% and higher;A = 94% and higher; A- = 90% and higher; B+ = 87% and higher; B = 84% and higher; B- = 80% and higher; C+ = 77% and higher; C = 74% and higher; C- = 70% and higher; D = 60% and higher; F= below 60%

Course Policies

Class Attendance

Students are expected to engage in active classroom discussion, thus class participation and attendance are mandatory. This includes submitting assignments, leading discussions and participate classroom debates.

Email

GMU faculty and students are required to use GMU email accounts to communicate. You must regularly check your GMU email address, as important updates will be sent that way. Emails that I send to our class will also be posted as Blackboard announcements which you can view on the "Home Page" of our course Blackboard.

Electronics

All electronic devices, including laptops, tablets, cell/smartphones, earbuds, etc., will be **strictly** prohibited in class. This is because they undermine the user's ability to learn effectively as well as those nearby the user. However, students will be permitted to use their laptops for presentations.

Policy on Make–up Work

Please be aware that makeup quizzes and exams will be permitted solely for medical reasons, with a doctor's note required as proof. It is mandatory for students to inform the instructor in advance if they anticipate missing a quiz or exam due to medical reasons. To ensure fairness and maintain academic integrity, makeup quizzes may feature different problem sets and could be more challenging.

University Policies and Resources

Academic Integrity

George Mason University has an Honor Code with clear guidelines regarding academic integrity. Please see http://honorcode.gmu.edu/ to ensure that you abide by it. If you are uncertain about citation rules or assignment guidelines, ask me for clarification. No grade is important enough to justify academic misconduct. If you feel unusual pressure or anxiety about your grade in this or any other course, please let me know and also seek help from University resources.

Academic Resource Center

The Academic Resource Center offers tutoring and workshops to support your academic progress. To discuss academic support resource available to you, please contact Eunmee Lee, Ph.D., Director of the Academic Resource Center at elee45@gmu.edu. (https://masonkorea.gmu.edu/resources-andservices/academic-resource-center)

Counseling and Wellness

Counseling and Wellness aims to provide comprehensive support services that promote the personal, social, and academic success of George Mason University Korea students. (https://masonkorea.gmu.edu/resources-and-services/counseling-and-wellness

Disability Services

Disability Services at George Mason University is committed to providing equitable access to learning opportunities for all students. If you are seeking accommodations for this class, please visit the Disability Services office (https://masonkorea.gmu.edu/resources-and-services/disability-servic

Course Modality

The Korean Ministry of Education's recommendation that higher education instruction be conducted in person this semester reaffirms Mason Korea's instructional modality. This course has been designed for in person instruction and learning. Course sessions will not be recorded to fully engage in an interactive learning environment. This course will follow all policies and guidance set by Mason Korea. Should any class sessions need to be adjusted or canceled due to health and safety concerns, students will be notified by email and can continue to check Blackboard for course materials and updates.

Classroom precautions during/after COVID-19

Although it is no longer required to wear a mask inside the Mason Korea building, you are required to wear a mask in the classroom if you have any suspicious symptoms or had a close contact with a confirmed case. If you test positive, please continue to immediately report to MK Emergency, Health and Safety (EHS) using online form or email (mksafety@gmu.edu). Mason Korea will follow the same procedure for a confirmed case as long as the Korean government mandates people to quarantine for 7 days when testing positive. There may be some occasions

where I may ask you to wear masks. Please take all the recommended precautions to keep our community and yourself safe. MK EHS will supply masks and self-test kits, please visit the office at #545 when necessary. If you have any questions, please contact Mason Korea EHS at mksafety@gmu.edu or 032-626-5013.

Course Schedule

Please note that the course schedule provided is tentative and may undergo modifications. I retain the right to adjust the course's pace and content as required to optimize learning outcomes. Each exam will assess the material taught until one week preceding the exam date. Nevertheless, the latter half of the semester's applications often build upon the concepts introduced in the first half. Therefore, it remains vital to periodically review these foundational concepts throughout the course to ensure comprehensive understanding and application.

Week 01, 02/19 - 02/23: Introduction

- Syllabus overview
- Chapter 1. The Environment and Economics
- Sandmo, A. (2014). The early history of environmental economics. Review of Environmental Economics and Policy, 8(1), 1-18. doi: 10.1093/reep/reu018

Week 02, 02/26 - 03/01: Introduction

- Chapter 2. Positive and Normative Economic Analysis
- Fullerton, D., & Stavins, R. N. (1998). How economists see the environment. Nature, 395(6702), 433-434. doi: 10.1038/26565

Week 03, 03/04 - 03/08: How Much Environmental Quality?

- Chapter 3. Making Societal Choices: How Much Environmental Protection?

Week 04, 03/11 - 03/15: How Much Environmental Quality?

- Chapter 4. Welfare and Markets
- First draft due (1 page)

Week 05, 03/18 - 03/22: How Much Environmental Quality?

- Chapter 5. Market Failure: Public Goods and Externalities Part I.
- Quiz #1

Week 06, 03/25 - 03/29: How Much Environmental Quality?

- Chapter 5. Market Failure: Public Goods and Externalities Part 2.

Week 07, 04/01 - 04/05: How Much Environmental Quality?

- Chapter 6. Making Decisions about Environmental Programs

Week 08, 04/08 - 04/12: Spring Recess

- Mon Apr 8-Tue Apr 9: Spring Recess (no classes)
- Wed Apr 10: National Assembly Election (no classes)

Week 09, 04/15 - 04/19: **Midterm Week**

- Tue Apr 16: **Midterm exam**: Chapters 1–7

Week 10, 04/22 - 04/26: Demand for Environmental Goods

- Chapter 7. Demand for Environmental Goods Part 1.

Week 11, 04/29 - 05/03: No Classes

- Tue Apr 30: Make Up Day 1 (Follow Wednesday Schedule. Tuesday classes do not meet.)

Week 12, 05/06 - 05/10: Demand for Environmental Goods

- Chapter 7. Demand for Environmental Goods Part 2.
- Fri May 9: IGC Research Showcase

Week 13, 05/13 - 05/17: Demand for Environmental Goods

- Chapter 8. Revealed Preferences: Pollution, Land Prices, and Wages Part 1.
- Quiz #2

Week 14, 05/20 - 05/24: Demand for Environmental Goods

- Chapter 8. Revealed Preferences: Pollution, Land Prices, and Wages Part 2.

Week 15, 05/27 - 05/31: Demand for Environmental Goods

- Chapter 9. Revealed Preferences: Defensive Expenditures and Travel Cost

Week 16, 06/03 - 06/07: Demand for Environmental Goods

- Chapter 10. Stated Preferences, Experiments, and Referenda

Week 17, 06/10 - 06/14: **Final Exam**: Tuesday, June 11 (9:00am – 11:45am)