

AAE/ENVIR 244 : Environment & The Global Economy

University of Wisconsin - Madison

Fall 2025

Location: Russell Laboratories 184 Tues/Thurs 11:00am-12:15pm

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| Professor | Dr. Rhiannon Jerch |
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| Office Hours | Tuesdays 2:30-3:30pm or by appointment |

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| TA | Elizabeth Anderson |
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| Office Hours | Thursdays 12:30pm-1:30pm or by appointment |

Course Description.

This introductory course will familiarize students with the ways in which economists think about the environment. We will examine how economists define environmental problems, and what they diagnose to be their source. A major focus of this course will be on the role of government and markets in environmental quality, the social consequences of pollution and regulation, and the challenges of developing socially efficient environmental policy. Topics will include discussion of externalities in an environmental context, and the economic rationale behind common forms of environmental regulation, including taxation, command and control, cap and trade, and privatization.

We will focus on major global environmental challenges related to climate change, land and wildlife conservation, and air, water, and soil pollution. In the context of these topics, students will learn the language of economics. Important examples of this language include *the law of demand, consumer surplus, economic efficiency, open access, public goods, and externalities*.

My goal is to engage interest in two dimensional graphs and algebraic manipulations by demonstrating how these tools help us understand environmental problems and their solutions. In addition, we will use articles from academic literature and the popular press, we will evaluate the consequences of regulations, discuss the costs and benefits of pollution, valuation of environmental amenities, and the social costs and benefits of environmental policy. We will discuss common challenges of environmental policy, including environmental justice, the efficiency/equity tradeoff, and the political economy of regulation.

Course Objectives.

Upon completion of this course, students will be able to:

- Explain the social, economic, and/or environmental dimensions of the sustainability challenges of balancing healthy global economies with environmental quality
- Use appropriate tools to analyze how governmental policies affect the use and conservation of natural resources

- Demonstrate knowledge of economic concepts to think critically about relationships between economic activity and global environmental challenges ranging from climate change to biodiversity loss
- Analyze the causes of and solutions for the sustainability challenges of maintaining environmental quality and healthy economies
- Predict the indirect effects of government interventions in environmental sustainability efforts
- Use basic economic tools for the analysis of environmental policy

Prerequisites.

- There are no prerequisites for this course, so I will assume that students have not had exposure to economics.

Class Materials and (useful but not required) Texts.

- Lecture slides, articles, and other readings and videos noted in the course schedule are made available on the course Canvas page. We will occasionally make use of academic articles, or news articles. I may add other resources to the course website throughout the semester. ***There is no required textbook.*** However, the following two text books may be of use:
 - i. Goodstein and Polasky, *Economics and the Environment*, 9th edition (or earlier)
 - ii. Mankiw, N. Gregory. *Principles of Economics*. 9th edition (or earlier)

While I do not require that students purchase these texts, they provide the framework that I will largely follow for the course. I will post selected readings from Mankiw to Canvas. E-book and hardcopy versions of both texts are available on Amazon and through the UW Library.

Canvas.

Class announcements, homework, lecture slides, and supplemental reading assignments will be posted on the course website on Canvas. It is your responsibility to check the site regularly – at least every day the class is held. All important announcements will be posted there.

Grading Criteria.

- Problem Sets: 20% (5 x 4% each)
- Prelim: 30% or 40% *
- Final Exam: 40% or 30% *

* Note – I will calculate each student's final grade using whichever allocation of the prelim/final exam generates the higher score on a person-by-person basis

- Class Participation: 10%.

Problem Sets.

Students will do all homework in teams of about 5 students, which we will assign during the first week of class. Due at the beginning of class (by 11:05am) ***in hard copy form***. Due dates are listed on the syllabus, but are subject to change depending on how class pace is going. Please list all team members' names on the final product.

Homework will be graded on a scale of 0 to 4 which, respectively corresponds to: "not turned in or very little effort" (0) / "little effort with some problems correct" (2) / "attempted all problems with some correct" (3) / "attempted all problems with most correct" (4). All students in a team receive the same grade. To prevent issues of free riding, students will have the opportunity to review the

participation of their teammates in the homework-preparation process. Your peers' assessment of your efforts in completing group homework assignments will factor into your final homework grade.

You can expect a problem set to be due approximately once every 1.5-2 weeks, excluding weeks with a midterm. To be considered on time, problem sets must be submitted in *hard copy, in class* within the first 5 minutes of the start of class (i.e., 11:05am). I post solutions to problem sets on Canvas 24 hours after they are due.

I accept late homework within 24 hours of the original due date, but reduce the score by 1 point for each 12 hours it is late. For example, if you submit a problem set 1 hour late then you will automatically lose 1 point. If you submit a problem set 14 hours late, you will automatically lose 2 points. Late assignments should be sent to the TA over email (please cc me). Assignments sent over 24 hours from the original due date will receive a 0.

Participation & Reading Assignments.

We hope that you will come to class and participate in discussion. Your participation grade will depend upon in-class polling via TopHat software. We will also consider active participation among students, which includes asking questions in class (both lecture and Friday discussion), participating in discussions, and attending office hours.

TopHat software allows me to use interactive polling during class. To participate, you need either a laptop, tablet, or smart phone, so please bring one of those to each class. Please create your TopHat account using your @wisc.edu email address within the first week of class. You can access all polling via the TopHat app (available in your Apple or Google app store) or through the Canvas class page. I'll walk through the registration process in lecture, but if you register with TopHat on your own before class, please do so using your UW-provided email address.

Our Course Join Code is **432200**

These polls are a significant portion of your participation grade. You can expect one or two polls each week. The TopHat polls will be related to the course content and whatever reading is assigned for that week. Thus, I encourage you to keep up with the reading assignments. I will use the following scale for scoring. I do not keep track until after the add period has ended.

Answered at least 75% of polls with at least half correct: 10 points out of 10

Answered between 60-75% of polls with at least half correct: 7 out of 10

Answered between 40-60% of polls with at least half correct: 5 points out of 10

Answered less than 40% of polls: 0 points out of 10

Exam Taking & Materials.

There will be one midterm (prelim) and a final exam. The final exam will be the same length (and should take the same time) as the midterm, and will only cover material addressed in the second half of the course. Exams will be administered in class, in person. Exam questions may cover everything discussed in class, in the problem sets, or in Friday discussion sections. Problem set questions, as well as questions I and the TA present in class and Friday discussion, are designed to be representative of what you may expect during the exams. You are allowed 1 hour and 15 minutes to complete each

exam. If you have a testing accommodation, please see me during the first two weeks of the semester to confirm logistics for your particular case.

Missed exams and incomplete grades.

No makeup midterms or finals will be given for any reason (excused or unexcused). If a student misses a midterm exam and submits a valid excuse, your final exam grade will be used as a replacement for the missed midterm grade, on top of counting as the final exam grade. That is, if you miss the midterm because of one of the valid excuses listed below, the final will make up 70% of your grade for the course. If a student *who has completed other coursework with a passing grade* misses the final exam and submits a valid excuse, the student will receive an incomplete for the course. If you miss a midterm or the final without one of the valid excuses listed above, you will get a 0 on that midterm or final.

Students are responsible for making sure, at the beginning of the term, that they can take the exams. Registering for a course means that you certify that you will be available for the exam (unless one of the explicitly stated exceptions below arises).

Valid excuses for missing an exam:

- 3 exams scheduled within one calendar day (must provide proof based on syllabi of other courses or email from instructor)
- Observance of a university-recognized religious holiday (Note: Per university policy, students are responsible for notifying me *within the first two weeks of the semester* of the date(s) when they request relief due to a religious observance)
- An illness/health emergency
- A death in your family

Examples of reasons that are *not* valid for missing an exam are:

- Job internships/interviews
- Beginning fall or spring break early or returning after a scheduled exam
- End of semester early flights
- Take home exams in other classes
- Any other reason you would prefer not to be at the university when the exam is scheduled

Grade Appeal Policy.

Students that disagree with their exam grade may submit a written request of a *full* exam grade review within the two classes of receiving their graded exam (e.g., if exams are returned on a Thursday, regrade requests must be submitted by the end of class the following Thursday). This request should consist of a written letter that gives a description of the potential error in grading and should be emailed to me. The grade review will consist of a careful reassessment of all graded questions and may result in no change, or an overall higher or lower grade than the original contested grade. In the case of an incorrectly tallied score, no typed request is necessary. Please simply bring the error to our attention and we will gladly rectify the problem.

Sections.

This class will meet one time per week in smaller classes for Discussion Section with the TA. Section is a great opportunity to ask questions, participate in discussion, and engage the material and you are

expected to attend. The goals of the breakout sessions are: a) to let students ask questions, b) review, augment, and apply the material taught in the previous two lectures and c) to present new material.

Lecture Slides and Notetaking.

I highly recommend taking notes during lecture. I will use projected slides as well as the blackboard during lecture. Lecture slides will be posted on Canvas before class (usually the day before the lecture). However, I will not always post lecture material written on the blackboard or communicated verbally in class. **Lecture slides do not contain all the class material, and, hence, can be a poor substitute for class attendance and notes.**

Contacting Me & Email Policy.

You can expect us to respond to emails within 24 hours after you send it. **Please include the course name and number (“AAE 244”) in the subject of all emails** and please **include your full name at the end of the email**. If we do not know who the email is from or what course it relates to, we will not answer the email. Emails should be restricted to short questions that can be answered in a sentence or two. For questions related to course content that require a more thoughtful response, please come to our office hours or set up a time to meet with us. Please be respectful in emails. No text speak: please use a salutation and valediction; and please use capital letters and punctuation where appropriate.

We will always be available during our office hours. If you would like to meet with either of us outside of office hours, please send us an email and we can set up a separate time to meet.

Classroom etiquette.

I value your presence in my class, and I want your classmates to feel the same way. I am requesting that you NOT eat/drink during class because it can be distracting. Please silence your cell phones and other electronic devices during class. If you need to respond to a text message or make a phone call, please leave the classroom before doing so.

Accommodations for Students with Disabilities.

The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy ([UW-855](#)) require the university to provide reasonable accommodations to students with disabilities to access and participate in its academic programs and educational services. Faculty and students share responsibility in the accommodation process. Students are expected to inform faculty of their need for instructional accommodations during the beginning of the semester, or as soon as possible after being approved for accommodations. Faculty will work either directly with the student or in coordination with the McBurney Center to provide reasonable instructional and course-related accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA. (See: [McBurney Disability Resource Center](#))

Academic Integrity.

I do not tolerate academic misconduct. I will not hesitate to assign failing grades to students who do not fully comply with the University's academic misconduct policy (<http://www.students.wisc.edu/doso/academic-integrity/>.) If you find yourself contemplating cheating,

plagiarism, or other forms of academic misconduct, please come see me first. Help is available if you are struggling. I want everyone in the class to try their best and to do their own work.

Use of AI

Generative AI is a useful technology that can be useful for writing and problem solving. It will probably become even more useful over your time in the workforce. I encourage you to experiment with AI, learn how to use it well, and familiarize yourself with its strengths and limitations. At the same time, I want this class to be an opportunity for you to build your own skills. Using AI as a *substitute* for your own effort will be a disservice to you, me, your classmates. Because it is important to me that you develop your own skills and intuition for economic concepts, use of AI on all problem sets is not accepted. If the TA or I suspect that your answers were generated through an AI tool you will receive no credit for the assignment. If you're not sure what's okay in terms of use of AI, please ask!

Mental and Emotional Health. In the best of times, college can be an incredibly stressful experience. University Health Services provides a number of useful resources for mental health (<https://www.uhs.wisc.edu/mental-health/>), and my door is always open should you need it. If a situation arises where you find yourself emotionally or physically unable to keep pace with our schedule, please do not hesitate to contact me or your TA and we can discuss how to best address the situation.

Child/Dependent Care and the Classroom: Arranging dependent care is a complicated process (I deeply sympathize). Should you find yourself suddenly without coverage during class time and still wanting to attend, please feel free to bring children or other dependents to lecture. Similarly, parents with infants in need of regular feedings are welcome to bring them to class. I ask only that you sit somewhere with easy access to an exit such that, if a situation requires a hasty retreat, you can do so with minimum disruption. Out of consideration for your classmates, please do not bring in any dependents that are unwell.

All other Syllabus Statements apply! <https://guide.wisc.edu/courses/#SyllabusStatements>

Course Schedule (subject to change)

| Week | Dates | Topics to Cover | Due | Readings |
|------|---------------|---|-----------------|----------|
| 1 | Sep 4 | Intro | | R1, R2 |
| 2 | Sep 9, 11 | Micro Theory Basics & Welfare | | |
| 3 | Sep 16, 18 | Public Goods & Externalities | PS 1 due Sep 18 | R3 |
| 4 | Sep 23, 25 | Externalities & Government Decision Tools | | |
| 5 | Sep 30, Oct 2 | Govt' Decision Tools; Climate Change & Discount Rates | | R4 |
| 6 | Oct 7, 9 | Cap n Trade, Non-Market Valuation | PS 2 due Oct 7 | R5 |
| 7 | Oct 14, 16 | Non-Market Valuation - VSL | PS 3 due Oct 16 | R6 |
| 8 | Oct 21, 23 | Review & Midterm (Oct 23) | | |
| 9 | Oct 28, 30 | Safety & Sustainability Standards | | |
| 10 | Nov 4, 6 | Natural Capital & Bio Economic Model | | R7 |

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| 11 | Nov 11, 13 | NO CLASS | PS 4 due Nov 13 – submit to TA mailbox | Listen to Freakonomics Podcast |
| 12 | Nov 18, 20 | Freakonomics Podcast & Trade | | R8, R9 |
| 13 | Nov 23 | Trade & the Environment (Nov 25, no class for Thanksgiving) | | |
| 14 | Dec 2, 4 | Poverty & the Environment | PS 5 due Dec 2 | R11, R10 |
| 15 | Dec 9 | Review for final | | |
| 16 | Dec 13 | Final Exam (5:05-7:05pm) | | |
