

# Environmental Economics (EC 434:534)

WINTER 2022 SYLLABUS

Grant R. McDermott

Department of Economics, University of Oregon

## Summary

**When:** Mon & Wed, 12:00–15:20

**Where:** Knight Library 101 ([map](#))

**Who:** Grant McDermott (instructor)

🎓 Assistant Professor of Economics

✉ [grantmcd@uoregon.edu](mailto:grantmcd@uoregon.edu)

🕒 Mon 09:00–10:30 (Zoom only)

Melissa Wilson (GE)

🎓 Doctoral student in economics

✉ [mwilson6@uoregon.edu](mailto:mwilson6@uoregon.edu)

🕒 TBD

## Course description

*How much is a polar bear worth? Is it good to buy local? If reducing pollution is expensive, is it possible to have too little pollution? What is the best way to stop climate change? ...*

If these kinds of questions interest you, then you've signed up for the right course. Our goal is to explore the relationship between the economy and the environment. Despite what you may have heard, these two concepts are not in conflict. Economics illuminates the importance of aligning individual incentives with societal outcomes. It therefore provides a powerful framework for understanding and correcting environmental problems, as well as for measuring environmental benefits. The environment, in turn, serves as a fundamental input or outlet for nearly all forms of economic activity. However, environmental goods and amenities aren't priced or traded like most market goods and amenities. Environmental economics thus brings us into direct contact with some of the most interesting cases of market failure and deviations from the perfect world of "economics 101". In this course, we'll explore the ways in which unregulated markets can fail in the environmental realm, as well as the various policy tools that economists have developed to correct these problems. We'll also look at the techniques that economists use to measure environmental costs and benefits, and how this can help society best allocate its scarce resources. By the end of the course, students should have developed a solid understanding of environmental economics theory and how this theory continues to shape effective environmental policies in the real world.

## Prerequisites

Intermediate Microeconomics (EC 311), and one of Introductory Econometrics (EC 320) or Natural Resource Economics (EC 423). My working assumption is that you have a good understanding of basic calculus and econometrics.

## Class rules and COVID-19 policy

**COVID-19:** The University of Oregon has very clear [COVID-19 guidelines](#). I recommend reading the whole thing. But the three most important things from my perspective as your lecturer are:

1. Everyone is required to be fully vaccinated, including a 3<sup>rd</sup> booster jab by the end of January.
2. You are expected to wear a mask, covering your mouth and nose, at all times.<sup>1</sup>
3. Do not come to lectures if you are unwell or have been exposed to COVID-19.

Please note that I will be strictly enforcing point (2) and, as much as I can, point (3). People without a properly fitting mask, or who are clearly unwell, will be made to leave the lecture room.

**General:** Apart from the COVID-19 stuff, I'll stick to some pretty commonsense in-class rules. No laptops or cellphones during the lecture. iPads and other tablets are fine if that's what you're using to take notes or annotate the slides, so long as you use an Apple pencil or stylus.<sup>2</sup>

I'm hoping to encourage an interactive and engaging classroom atmosphere. In-class participation will be rewarded and you should expect me to call on you to answer questions and discuss ideas during lectures. I will treat you as adults and anticipate that you can engage with challenging or uncomfortable ideas accordingly. At the same time, discriminatory or egregiously inflammatory language will not be tolerated. Similarly, the university takes an appropriately hard-line policy on sexual discrimination and violence that you should acquaint yourself with. [President Schill's NYT op-ed](#) on free speech on campus is another useful reference.

## Grade determination and protocol

Successful completion of the course will entail a mix of in-class participation and semi-weekly homework quizzes on Canvas, as well as a midterm and final exam. EC 534 students will also be required to submit a research paper.

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<sup>1</sup>Except when having a quick drink.

<sup>2</sup>Basically, anything that doesn't involve tapping the screen and thus distracting those around you. At the same time, I'm happy to make exceptions for relevant cases; just ask me.

Grades will be determined as follows:

EC 434		EC 534	
Homework quizzes	10%	Homework quizzes	10%
Midterm	40%	Midterm	20%
		Research paper	20%
Final exam	50%	Final exam	50%

Note: A class participation bonus worth an additional 2.5% will be awarded at my discretion.

Please note that you are going to be graded on a curve. This means that the absolute scores or percentages from your midterm and final are largely irrelevant. What matters most is where you are in the distribution of scores among your peers. Your letter grades that I post at the end of the quarter will reflect this curve. Usually (but not always) the threshold for an “A” grade is around 80%. Usually (but not always) the threshold for a “B” grade is around 70%. There is only one absolute standard: **To pass this course, you need to get at least 50% in aggregate.** This pass/fail threshold could be higher depending on how the class performs as a whole, but it will not be lower. Finally, please also note that these are the only criteria by which you will be graded. I will not consider any additional submissions/essays/tests/etc. to change your final grade.

### Homework quizzes (and class participation bonus)

Homework will be assigned semi-weekly and will generally take the form of multiple choice quizzes on Canvas. The goal is to reinforce concepts from the lectures; particularly the sections and examples that we work through together during class. (If you’re wondering about the costs of missing class, this is one of them.) **Note:** Late submissions will be penalised, or not graded at all.

I will also award a class participation “bonus” — equivalent to one of the homework assignments — at my discretion. I’ll explain this in more detail during our first lecture, but basically it will entail answering iClicker questions in class, and providing real-world examples of environmental news and topics related to the concepts that we cover during the course.

### Midterm

The midterm will take place around week five. Please note that no make-up midterm will be given. If you know that you cannot take the midterm for valid, non-medical reasons (e.g. sports/athletic events), talk to me immediately. Failure to do so will result in a zero grade. If you miss the midterm due to medical reasons or last-minute emergencies, you will be required to provide proper documentation. If the documentation is acceptable, then the weighting for this section of the course will be placed on the final exam.

## Research project (EC 534 only)

The enrolled MSc students have a choice between two types of final projects. You may work alone or in pairs. The main deliverable for this project is a paper between 5 and 7 pages long. Depending on how things shake out with the remote lecturing, I may also have you give a short presentation on your chosen topic to the class. Your topic choices are:

- **Literature review.** You can do a literature review on up to 5 papers on an environmental, resource, or energy economics topic of your choice. Your goal will be to summarise the findings, find common threads, and work yet to be done in the area. My approval of your choice of papers is required before you start the literature review.
- **Data dive.** You can find a new dataset that we do not cover in class but appears useful for environmental economics research. Your goal is to describe the data, how you get them, how you use them, and what makes them relevant. You will also need to do some preliminary analysis on the data. My approval of your choice of dataset is required before you start the literature review.

## Final exam

The final is [scheduled](#) for **Friday, March 18 at 8 am**. It will be a cumulative exam, i.e. covering the entire syllabus. Make-up final exams will be allowed in the case of documented emergency and advanced notice. Missing the final exam without a documented emergency and advanced notice will result in a zero grade. If you know now that you cannot make this exam, do not register for the class.

Both the midterms and final exam will be closed notes, closed book. Acceptable items are limited to: pens/pencils and a straight-edge for the final exam, and non-programmable, non-cell phone based hand-held calculators.

## Lecture notes, textbook(s) and other readings

Teaching an environmental economics course for upper undergraduates is complicated by the fact that there is no ideal textbook aimed at this level. Lecture slides will thus be “self-contained”, in the sense that you won’t require additional textbook material to pass the course. I will make these slides available on Canvas ahead of class. However, please note that the slides will not be entirely complete: I’ll save some of the most important material for the actual lecture, where we’ll work through these missing sections together in real time. You will need to take your own notes here and will only be able to do so if you actually attend the lecture.

While I won’t be prescribing any textbook, there are several options out there for motivated students

who want to deepen their understanding of environmental economics. Here are two that you might consider. Both should be available at the Duck Store, or can be loaned from the Knight Library.

- “[Markets and the Environment](#)” (2<sup>nd</sup> edition) by Keohane and Olmstead (K&O). I’m a big fan of this book. It does an excellent job of conveying the intuition of environmental economics and discusses a bunch of interesting case studies. It’s also pretty cheap and has proven popular with students in the past.
- “[Environmental and Natural Resource Economics](#)” (10<sup>th</sup> edition) by Tietenberg and Lewis (T&L). Another well-regarded textbook that provides a solid, if superficial, introduction to the field.

## **Honesty and academic integrity**

Students caught cheating or plagiarizing will automatically be assigned a zero grade. Please acquaint yourself with the Student Conduct Code at <http://studentlife.uoregon.edu>.

## **Accessibility**

If you have a documented disability and anticipate needing accommodations in this course, please make arrangements with me during the first week of the term. Please request that the [Accessible Education Center](#) send me a letter verifying your situation.

## Course outline

Date	Topic	Text (chapters)
Jan 4	Review: Basic calculus and welfare analysis	
Jan 6	Economic efficiency and property rights	K&O (1, 4); T&L (1, 2)
Jan 11	Externalities and market failure	K&O (5); T&L (2)
Jan 13	Evaluating trade-offs: Cost-Benefit Analysis & co.	K&O (3); T&L (3)
Jan 18	Non-market valuation: 1) Stated preference methods	K&O (3); T&L (4)
Jan 20	Non-market valuation: 2) Revealed preference methods	K&O (3); T&L (4)
Jan 25	Pollution control: 1) Pigouvian policy	K&O (8, 9); T&L (14)
	<b>Research paper topic (EC 534 only)</b>	
Jan 27	Practice problems	
Feb 1	<b>MIDTERM</b>	
Feb 3	Pollution control: 2) Tradeable permits	T&L (14); K&O (8, 9)
Feb 8	Stationary-source air pollution	T&L (15); K&O (10)
Feb 10	Mobile-source air pollution	T&L (17)
Feb 15	Climate change: 1) Discounting	K&O (10); T&L (16)
Feb 17	Climate change: 2) Damages	T&L (16)
Feb 22	Trade and the environment	K&O (11); T&L (20)
Feb 24	Water pollution	K&O (9, 10); T&L (18)
Mar 1	Environmental Justice	
Mar 3	Frontiers of environmental economics	
	<b>Research paper deadline (EC 534 only)</b>	
Mar 8	Overview and exam prep	
Mar 18	<b>FINAL EXAM</b>	