

Course Syllabus

Edit

Alternative formats

Some basic class information

Econ 3430 -Economics of Sustainability and the Environment

Fall 2023 (Syllabus Ver. 8/23/23)

Instructor: Bill Shobe

Email: shobe@virginia.edu

Office hours: 1 PM to 2:30 PM Monday and Wednesday, Monroe 332 or by appointment

Zoom (by appointment): My standard Zoom room: <https://virginia.zoom.us/my/bshobe>  [. \(https://virginia.zoom.us/my/bshobe\)](https://virginia.zoom.us/my/bshobe)

- If you wish to have a private conversation with me, please let me know, so that we can arrange a specific time and place.
- By appointment: I am not usually available on Fridays this term, although there will be exceptions.

Class location: This class will be in person in Warner Hall 209, MW 3:30 - 4:45 PM

- Discussion sections will be delivered in person.

Textbook and readings

Pollution & Property: Comparing Ownership Institutions for Environmental Protection, Daniel Cole; Cambridge, 2002. [Available through the bookstore or online.]

Environmental Economics: An Introduction (recent edition); Barry Field and Martha Field; McGraw Hill.

In order to keep textbook costs down, this class will offer UVA Bookstore Digital Access to the main text. Here is the information from the bookstore:

- This course will take part in the inclusive access program with The UVA Bookstore. This new service enables The UVA Bookstore to offer students instant access to the course materials your professor requires at the lowest price! The UVA Bookstore has implemented this program to save students as much money as possible.
- What does this mean for you, the student? It means you immediately have access to your digital course materials through UVA Collab/Blackboard for the first 2 weeks of class—for free. Login to your UVA Collab/Blackboard/or Canvas course and follow the instructions within the course to access the digital materials.
- After Sept. 7th, your student account will be charged \$45.75. If for some reason you decide you do not want to purchase these required materials, you can opt out of the program by clicking “OPT OUT.” If you opt out by the Sept. 7, 2022 deadline, your student account will not be charged. However, your access to the materials through UVA Collab/Blackboard/or Canvas will be removed. Due to the special pricing, no refunds can be processed.
- This program aims to offer all students accessibility and affordability. If you have any questions regarding the program, please email us at textbook@virginia.edu or call us at 434-924-1045.

Also, you will need to obtain a Kritik account. (I will provide information about this in the first class.)

Readings: there will be additional readings for each class posted on Canvas.

Grad TAs and Discussion Sections:

Alternative formats

- Avantika Prabhakar (ap7pp) [Time and place TBA]
- Sasha Ruby [Time and place TBA]
- Chunru Zheng [Time and place TBA]

Piazza

We will use Piazza [free] for communications related to class. Piazza is a great tool for raising and answering questions, making observations or helping each other out in thinking through homework questions. Both substantive and routine administrative questions should be posted to Piazza rather than email. This ensures that everyone sees the responses to questions. The TAs and I will monitor Piazza and weigh in as appropriate.

I hope that you will take the opportunity to respond to questions that your classmates raise on Piazza. I will certainly notice and appreciate it, if you do. As a rule, you should not expect that I will respond to Piazza posts on weekends, so it will be important for you to help each other out.

Course objectives

This class is about applying the tools of economic analysis to understand why we have environmental problems and concerns about sustainability. Once we understand the economic perspective about why these problems arise, we will explore what economics tells us about how we might solve the problems in ways that are both effective and fair. To accomplish these goals we need to:

1. Develop a deeper understanding of the microeconomic model of human interaction and how resources get allocated in society,
2. Understand when the standard microeconomic model works well and what might cause it to break down,
3. Understand the connection between ownership and exchange and sustainability,
4. Use this new, improved micro model to help us design effective solutions to pollution problems,
5. Place pollution problems in the context of multiple regions and levels of governance (environmental federalism),
6. Analyze carefully questions of environmental justice, when environmental problems appear unfairly distributed in society; how can we tell and how can we measure it,
7. Develop a model of how scarce resources are allocated between generations,
8. Analyze what this implies about how to manage renewable resources such as water and forests and non-renewable resources such as iron or oil,
9. Apply what we have learned so far to define "sustainability" and apply our economic thinking to how to achieve sustainable futures,
10. Use everything we have learned so far to the capstone, granddaddy environmental problem of them all, global warming.

I hope you will leave this class as optimistic as I am about our ability to use economics to help design clean, fair and sustainable futures.

Prerequisites

I will assumed that you know *or can learn as needed* the core ideas from introductory microeconomics texts. I will expect you to be able to use many key ideas from intro microeconomics in this class. For those who have not had introductory microeconomics, I will be reviewing the key ideas at the start of term. In the past, non-economics majors have been able to hold their own in this class as long as they are willing to learn some microeconomic principles as we move through the material. This class does not explicitly use calculus, but you will find that some important ideas from calculus are used throughout the term.

Honor Policy

Our honor contract: You have the responsibility of submitting only your own work as your own, and I have the responsibility of trusting you when you pledge your work. All written work handed in to me under your name is considered to be pledged, but please pledge it explicitly anyway. And please pledge any documentation that you provide for special arrangements on graded work. Please note: *As a matter of course, I check randomly chosen assignments for plagiarism using standard, online services.* I expect you to know the rules concerning plagiarism and to be careful never to claim the work of others as your own. This may not always require a formal citation as long as you clearly attribute the work of others in your text.

Special Accommodations

If you need special accommodations for any class requirements, you must contact me as soon as you reasonably can. Serious illness or death within the student's close community, religious holidays, and participation in field trips and athletic contests are all permissible reasons for rescheduling an in-class test. You have the obligation ahead of time to make the necessary arrangements for make-ups. Your reasons must be in writing (which includes email) and should be pledged. Otherwise, no make-ups will be allowed.

Course Format

Class attendance is not required. Fair warning: in the past, those who did not attend class regularly tended to do poorly in the course.

Discussion sections will meet regularly and, as with class, attendance is highly recommended but not required. In the past, students have found the discussion sections very helpful.

Electronics

I request that you refrain from using cell phone, laptops, or tablet computers during class except by permission of Prof. Shobe. It is just too much of a distraction for all concerned.

Grading

Recent experience suggests that the average and median grades for this class will be around 86. Letter grades for the course will be assigned as follows:

A+ 98+

A 94+

A- 90+

B+ 88+

- B 84+
- B- 80+
- C+ 78+
- C 74+
- C- 70+
- D 60+
- F Otherwise

Alternative formats

The following part of the syllabus is still being updated. Stay tuned.

There will be one graded homework assignment (a short paper) for 10%, two mid-term tests and a final exam. Each of the mid-terms (dates: first week of October and first week of November) will each count for 25% of your grade, and the final will count for 35%. The final exam (Tuesday, December 12, 2023, 2 PM - 5 PM) will be fully comprehensive. I will also be using peer assessment for some items, which will count for 5% of your grade. We will use an online tool called Kritik. Using Kritik requires a subscription (\$29). Students have found this tool worthwhile.

Topic list

Unit 1: Resources, exchange, and the social optimum: where we review microeconomics in a way that may prove useful.

Unit 2: Property rights, markets and the environment: This unit introduces the ways in which ownership and control go awry and how this changes the outcomes in the standard microeconomic model.

Unit 3: "Externalities", public goods, and common property: We learn to distinguish various types of failures in ownership and control. This will give us a much more useful set of tools for analyzing places where we need to amend the standard micro model so that it includes issues with environment and sustainability.

Unit 4: Ronald Coase and The Problem of Social

Cost: This article takes you to the foundations of microeconomic analysis in a way that opens up new possibilities for improving environmental outcomes.

Alternative formats

Unit 5: Controlling Pollution: An Introduction:

Now that we understand how pollution problems arise, we want to start figuring out ways we might address them.

Unit 6: Incentives: emission charges, subsidies for emission reduction, and other ideas

Unit 7: Tradable emission allowances (fighting missing ownership and control with ownership and control)

Unit 8: More on pollution control instruments

On new evidence concerning the use of pollution taxes versus emission trading, which helps us design effective pollution control instruments.

Unit 9: Environmental Federalism: How do we decide what level of government should be responsible for different environmental problems? We can choose anything from inter-galactic treaty down to neighborhood association. What is the right choice for a given problem?

Unit 10: Environmental Justice: Considering the distribution of pollution costs. How do we judge when this distribution is unfair? Why it is important to be careful in determining when we should address unequal distribution of costs? What actions might we take?

Unit 11: Introduction to the Economics of

Natural Resources: How to we think about the appropriate allocation of natural resources across time? How much should we use now, and how much should we save for later?

Unit 12: Non-renewable natural resources: In which we show that it is possible to find a plan that allows us to use some exhaustible resources now but still leave future generations with the ability to be as well off as we are.

Unit 13: Renewable natural resources: Water, fish, forests, wildlife all share a similar structure. They can regenerate in timeframes relevant for human decision making. We will use fisheries as an introduction to the basic ideas used in modeling the economics of non-renewable resources.

In class mid-term: Wednesday, Nov. 8.

Unit 14: Sustainability: Here we put it all together and think about what makes a plan for the present and for the future "sustainable". This unit will use all of the tools from our class up to now.

Unit 15: Climate Change: Finally, we apply our analytical toolbox to the mother of all environmental problems we and future generations face.

That's all she wrote...