

Connecticut College
ECO 212: Environmental Economics[†]
Fall 2022 (8/30 - 12/19)

Professor:	Pierce Donovan	pdonovan@conncoll.edu
Lectures:	Blaustein 210	MWF 9:00 - 9:50 am
Office Hours:	Winthrop 305	MW 12:00 - 1:00 pm F 10:00 am - 12:00 pm

Course Description and Objectives

At its core, economics is a discipline focused on allocating scarce resources. This extends to natural resources, naturally! In fact, a strong foundation in economics is essential for tackling environmental issues, and I'll be using this course to back up my claim. Since the most pressing challenges that humanity faces today concern how we choose to interact with the environment, it's a good thing that you've chosen not to sleep on environmental economics.

Economics provides a framework for making trade-offs between competing values. Freshwater can be used for irrigation or hydropower, or put in bottles—or it can be left alone in its natural state in rivers and aquifers. There are good reasons to allocate water to each “bin.” But without a complete understanding of the benefits and costs of each use, we create unnecessary waste.

These trade-offs help identify solutions for natural resource management, but not everyone views these trade-offs the same way. In this course you'll begin to view the world through the lens of an environmental economist—a lens hyper-focused on identifying the incentives driving sub-optimal behavior and developing policy that confronts the cause of a problem (rather than mitigating the consequences). You'll learn about the history of natural resource management from an economic perspective and become an informed critic of current environmental policy debates concerning land use, fisheries, forestry, oil extraction, pollution control, and many other topics.^{††}

Expectations

Introductory Microeconomics (ECO 112) is the only prerequisite, although this course is a bit more challenging than a sequel. ECO 212 is reading and writing-intensive. I expect you to read ahead of schedule and start assignments early—this will make your experience much more enjoyable, too. And while I want you to become deliberate, thoughtful, and convincing writers, effective persuasive writing skills aren't something that develop passively. It takes lots of practice and revision.

Most of the material in this course isn't conceptually-difficult or math-heavy, but it still takes effort to change from passive lecture bystander to active participant. Take some time to practice explaining the logic/ideas/graphs from lecture to others—you'll spot any gaps in your understanding and be able to use environmental economics more effectively in your writing (for this class and in the future). Feel free to make a habit of trying out your explanations on me in office hours. My most successful students tend to be office hour regulars.

[†]As the semester goes on, I may change the contents of this syllabus regarding the schedule, grading, or other details.

^{††}At a higher-level, courses like ECO 383(?): *Natural Resource Economics* further justify economic arguments with rigorous mathematical modeling. After 212, you may appreciate the more detailed perspective that the models can provide.

Textbook and Readings

Most of my lecture material will follow the direction of this book:

Markets and the Environment, Second Edition, 2016
- By Nathaniel O. Keohane and Sheila M. Olmstead

The book is required for the course, and it's a nice gift if you want to share it with a curious family member afterward. Additionally, certain lessons and assignments will require readings from other sources. Take a look at them *before* each lecture; the best way to follow along in class is to understand where we're heading in advance. For the reading schedule, see the course outline.[†]

A "collective annotator"—*hypothes.is*—will be used for taking notes on the assigned readings before each class. From past experience, this tool has increased engagement with the readings and fostered more dialogue during class. Your involvement here will give you credit toward your participation grade. This may be a good alternative for those who don't like speaking up at 9am.

Grading

I don't *give* grades, you *earn* them. Further, I don't judge your performance relative to your peers (i.e. curve your grades) during the term in order for you to have the clearest signal about your performance. I look for a proven understanding of the material via the following:

10%	Class Participation (class engagement, office hours questions, <i>hypothes.is</i> , etc.)
36%	(3) Homework Assignments
30%	Term Paper
~ 5%	Topic Proposal
~ 5%	Peer Review
~ 15%	Paper Submission
~ 5%	Presentation
24%	Final Exam

Grading written work can sometimes feel subjective, so I'll formalize what I'm looking for here:

- A (~90) You demonstrated a strong understanding in the subject at hand. Your answers provide an interesting/personal/insightful/detailed take beyond regurgitating course material.
- B (~80) You connected the dots and answered my questions satisfactorily. Information from lectures, the text, and readings were brought together to build a clear and coherent response.
- C (~70) You missed a bit of low-hanging fruit. Some of your responses didn't quite "get there," and some crucial/expected elements of a correct answer were missing.
- D (~60) You didn't demonstrate an adequate understanding of the material. There were erroneous/unsupported statements or incomplete answers in your work.
- F (0) You either didn't submit anything, or you *did* but that work didn't address the questions at hand or included plagiarized work.

[†]I'll use Moodle to upload all resources (slides, readings, assignments, grades, etc.) for the course.

Homework Assignments

There are three assignments due earlier in the course, each due on the Monday following a unit (submitted to Gradescope, as a PDF, at 9am). I encourage you to discuss the assignments together or with me, and you *must submit each one with a partner*. Late assignments will be accepted for three days, with a ten percentage point penalty per day.

I use these early assignments to nudge you toward “thinking like an environmental economist,” which is a bit more focused than merely explaining that there are issues with how we manage our natural resources. As it turns out, the problem is usually self-evident. We want to write policy to fix it—which requires an understanding of the underlying [economic] incentives at work. This will set you up for the term paper, which is meant to complete your transition from “student in an intro environmental economics class” to “person who can explain what environmental economics is to your extended family”—if that’s something you want to attempt, anyway.

Term Paper

The term paper is meant to be a deeper exploration into a related question of your own interest. We’ll build up to the final product in stages. Below is the general progression, and a separate *Term Paper Timeline* document can be found on Moodle. Each step of the way will bring in new questions for you to tackle, specific to your case study. The goal of this assignment is to apply what you’ve learned in class to a new environmental problem and come up with a policy solution consistent with economic principles.

Your general paper progression:

1. With a partner, find a particular environmental issue and setting of interest and write a summary of the issue. Why is it important? Who/what is involved? How could a story about your issue make use of the content from my lectures?
2. Discuss the nature of the issue using what you’ve learned (so far) about environmental economics. Is there a behavioral problem? An issue with institutions/market failure? A lack of research or incomplete policy? What policy solutions might be available?
3. Think about a potential “homework problem” that would help another student understand your environmental issue—and how to address it—the way you think makes sense. A good question doesn’t just cover the material, it delivers its own lesson. This part takes practice, but you’ll have plenty of examples after my homework assignments.
4. Present your thoughts in class. It’s important to talk about your work; expressing your thoughts to a captive audience is helpful for testing out ideas and finding future direction. You’ll use the presentation to walk through an answer to the homework problem you’ve developed.
5. Reflect on your analysis. Think about how your thoughts regarding environmental management have changed since starting this course. Use that to write something accessible to someone outside of this class (perhaps your parents).

Conduct

These are just a few more things to keep in mind that I put in all of my syllabi:

- Missing lecture isn't the end of the world. For example, if you feel sick, please do not come to class, recover, and get notes from a friend. I don't need an excuse, but please be in touch if you will be out for multiple days.
- Come to office hours! They're there for you! Asking clarifying questions about my material or assignments and talking with me about your interests beyond my courses are both good habits to start and can greatly improve your college experience (or a recommendation letter).
- When asking for help outside of class, the best students will show how they have approached a problem so far. Simply asking for an answer is not a productive use of our time. I hope to facilitate critical thinking, and that takes effort on everyone's part.
- While I'll be accessible by email, I strongly prefer communicating during class/office hours. Regarding boundaries, I do not plan on answering emails late at night or on the weekend.
- I will not tolerate academic dishonesty. You can review Connecticut College's Honor Code [here](#). I will report any suspected cheating, plagiarism, manipulation, or other misconduct.
- You do not have permission to publish my course materials (online or otherwise). I don't want to see my work hosted somewhere like CourseHero (see the Honor Code above).
- You are responsible for your technology problems. Be sure to submit assignments well ahead of the due date if you want to be sure that your submission is received/the proper format/etc.
- Please be respectful to your classmates. Refrain from talking during class if it is not relevant to lecture or discussion. Cell phone or tablet use should not detract from your ability to follow along with class. No activity on your part should undermine the efforts of other students.
- There are lots of things to learn in college besides my material, and there are lots of ways to optimize your learning experience. The Academic Resource Center ([link](#)) can assist you in getting the most out of your time and effort at Connecticut College.
- I can't recommend the tutoring services at the Roth Writing Center ([link](#)) enough if you want to work on clear and coherent communication. Focused writing takes practice, and college is a great time to put in the hours.
- If you have a learning disability or a physical disability that requires accommodation, please let me know as soon as possible. For more information on accommodation, you can contact Student Accessibility Services ([link](#)).
- If you have any problems with this course or any other matters that may affect your work in this course, or you simply need someone to talk to, please contact me sooner rather than later, and I will do my best to help. In cases where I'm not the appropriate resource, please seek support from Student Counseling Services ([link](#)). Reaching out to them is never a bad idea.
- Connecticut College is a diverse community of individuals with many perspectives and identities. In order to create an inclusive and intellectually vibrant community, we must understand individual differences and common ground. Connecticut College's statements on Freedom of Expression ([link](#)) and Principles of Community ([link](#)) reflect the ideals I seek to uphold in this class.

Course Outline

Foundations for Environmental Economics

Introduction to ECO 212 (and me) Wednesday, 8/31

The role of economics in environmental management Friday, 9/2

Book: Chapter 1, pp. 9-10

Reading: *An economic perspective on environmental and resource management*, Oates

Concepts: stewardship, constraints, scarcity, trade-offs

Economic efficiency and environmental policy Monday, 9/5

Book: Chapter 2

Concepts: maximizing net benefits, equi-marginal rule

The benefits and costs of environmental protection Wednesday, 9/7

Book: Chapter 3, pp. 35-55

Concepts: willingness-to-pay, revealed and stated preference methods, contingent valuation, hedonics, travel-cost methods, shadow values

Critiques of benefit-cost analysis Friday, 9/9

Book: Chapter 3, pp. 55-68

Reading: *The value of a statistical life and coronavirus*, with Alan Krupnick, Raimi

Concepts: inputs to policy, efficiency vs equity, discounting, uncertainty, VSL

Markets—and market failure Monday, 9/12

Book: Chapter 4, Chapter 5, pp. 80-91

Concepts: market completeness, unintended/uncompensated effects, social costs/benefits

Externalities and public goods Wednesday, 9/14

Reading: *New York City steps up*, McConnell and Krupnick

Reading: *Shifting sands: Using taxes to build the best beaches*, with Megan Mullin, Raimi

Reading: *China limited the Mekong's flow. Other countries suffered a drought.*, Beech

Concepts: rivalry and excludability, competing values, free-riding, public amenities

The tragedy of the commons Friday, 9/16

Book: Chapter 5, pp. 91-98

Reading: *Barbed wire entrepreneurship*, PERC

Reading: *Are unauthorized foreign vessels deterred from fishing inside EEZs?*, Englander

Concepts: selfishness, institutions, property rights, Coase theorem

Foundations discussion day Monday, 9/19

Reading: *To tax or not to tax? The answer may surprise you*, Spiller and Stephens

Homework #1 due.

Non-Renewables and Energy

What is land worth? Wednesday, 9/21

Reading: *L.A. country club pays ultra low property tax rate*, Romero

Concepts: scarcity, rents, land use, opportunity cost, asset value

Pollution Friday, 9/23

Book: Chapter 10, pp. 200-207, 208-210, 217-220

Reading: *Learning from thirty years of cap and trade*, Schmalensee and Stavins

Reading: *Pollution is killing Black Americans*, Villarosa

Concepts: cost-effective emissions reduction, distributional impacts

Command and control policies Monday, 9/26

Book: *Skim* Chapters 8-10

Reading: *Economic incentives versus command and control*, Harrington and Morgenstern

Reading: *Cap and Trade-Offs*, Johnson

Concepts: deadweight loss, Pigou, marginal damage, cost-effectiveness, flexibility, validity

Electricity Wednesday, 9/28

Reading: *The next energy battle*, Penn

Reading: *Renewable energy certificates, explained*, Roberts

Reading: *How dairy farmers are cashing in on California's push for cleaner fuel*, Smith

Concepts: utilities, energy generation, energy efficiency

No class (Fall Weekend) Friday, 9/30

Optimal extraction of a non-renewable resource Monday, 10/3

Book: Chapter 6

Reading: *Why gas prices are so high*, Koeze and Krauss

Concepts: dynamic efficiency, intertemporal arbitrage, marginal user cost, Hotelling rule

No class (Yom Kippur) Wednesday, 10/5

Causes and consequences of sub-optimal extraction Friday, 10/7

Reading: *The economic impacts of agricultural groundwater markets*, Bruno

Concepts: market power, non-excludability, protection/stability

Non-renewables discussion day Monday, 10/10

Reading: *Why Galesburg has no money*, Hicks

Homework #2 due.

No class Wednesday, 10/12

Renewables

A little bioeconomics Friday, 10/14

Book: Chapter 7, pp. 128-138

Concepts: fisheries, open-access, logistic model, carrying capacity, steady-state

No class (Fall Break) Monday, 10/17

Regulated open-access fisheries Wednesday, 10/19

Reading: *The texture of rents*, Wilen, pp. 1-12

Reading: *The world can't keep fishing like this*, Allgeier and Punke

Concepts: rent-dissipation, derbies, over-capitalization

Individual fishing quotas Friday, 10/21

Book: Chapter 10, pp. 207-214

Reading: *The texture of rents*, Wilen, pp. 12-29

Reading: *A famed fishing port shudders as its Codfather goes to jail*, Bidgood

Concepts: IFQ/ITQs, wealth creation, cost-minimization, new market generation

Introduction to forestry Monday, 10/24

Book: Chapter 7, pp. 114-118

Concepts: quasi-renewable, mean/current annual increment, Wicksell rotation

Optimal forest rotation Wednesday, 10/26

Book: Chapter 7, pp. 118-122

Reading: *Thousands of Southerners planted trees for retirement. It didn't work.*, Dezember

Concepts: Faustmann rotation, site value, dynamic efficiency

Non-timber values Friday, 10/28

Book: Chapter 7, pp. 122-128

Concepts: ecosystem management, carbon sequestration, foraging

Renewables discussion day Monday, 10/31

Reading: *As the Great Salt Lake dries up, Utah faces An 'Environmental Nuclear Bomb'*, Flavelle

Homework #3 due.

Term Paper Brainstorming Session I Wednesday, 11/2

Term Paper Brainstorming Session II Friday, 11/4

Conservation

Endangered species protection Monday, 11/7

Book: Chapter 10, pp. 224-229

Reading: *Carving out some space*, Boyd, Caballero, and Simpson

Concepts: the ESA, tradable development rights, mitigation/conservation banking

Prospectus due.

Ecosystem services Wednesday, 11/9

Reading: *Green growth that works: Discussing ecosystem services*, with Lisa Mandle, Raimi

Concepts: natural capital, green infrastructure, non-market valuation

The effects of invasive species Friday, 11/11

Reading: *Can genetic engineering bring back the American Chestnut?*, Popkin

Concepts: natural experiments, international trade, blights, “pest control”

Viability objectives and the value of preservation Monday, 11/14

Concepts: ongoing species protection, pricing bycatch, valuing tipping points

Peer review due.

Non-market valuation Wednesday, 11/16

Reading: *Measurement of recreation benefits*, Trice and Wood

Concepts: travel cost method, hedonic pricing

Integrated assessment modeling Friday, 11/18

Reading: *The strategic costs of carbon emissions*, Wichman

Reading: *The new social cost of carbon*, Auffhammer

Concepts: intergenerational utility, social damage, social cost of carbon

Western water Monday, 11/21

Reading: *Wall Street eyes billions in the Colorado's water*, Howe

Reading: *The largest dam-removal in US history*, Matthews

Reading: *Cadillac Desert*, Marc Reisner (read this over the summer instead)

Concepts: CA water management, settlement, irrigation, theft

No class (Thanksgiving Break) Wednesday, 11/23

No class (Thanksgiving Break) Friday, 11/25

Conservation discussion day Monday, 11/28

Reading: *Economics in the age of environmental policy*, with Robert Stavins, Raimi

Concepts: climate change, social justice, power generation, sustainability

Term paper due.

Term Paper Presentations

No class Wednesday, 11/30

Early presentations Friday, 12/2

Week of more presentations Monday, 12/5

Review session Monday, 12/12

Book: Chapter 12

Final Exam (Actual date TBD) Wednesday, 12/14