

**Econ 231**  
**Environmental Economics and Policy**  
**Spring 2024**

<b>Instructor</b>	Sarah West
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<b>Sarah's office hours</b>	Drop-in to Sarah's office (CAR 310-F), Tuesdays 2:30-4:00PM Schedule an appointment: Sign up on my <a href="#">Google Calendar</a> Please take note about whether it is an in-person or Zoom appointment
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<b>Preceptor</b>	Brynn Daines (bdaines@macalester.edu)

### Course Description and Objectives

Despite decades of progress in reducing harmful local pollutants, much of the world's population continues to be exposed to emissions that damage health, diminish capacity for learning and work, and hamper sustainable economic growth. The effects of climate change already result in billions of dollars of annual economic losses and threaten many species with extinction. Unabated, greenhouse gas emissions will lead to devastating sea level rise, the spread of tropical disease, and greater weather extremes. This course seeks pragmatic solutions to these problems by evaluating the economics of policy toward the environment. We begin by examining the problem of market failure in the presence of externalities and public goods. Then, we consider policy responses to these market failures, including command-and-control regulations, tax and subsidy incentives, marketable pollution permits, and information as regulation. We consider these policies in the contexts of local pollution, climate change, and evolving and volatile political commitment to pollution reduction. In addition, we learn how to measure the costs and benefits of pollution control. By the end of the semester, you will learn how economists think about environmental problems, how to estimate and compare the magnitudes of the benefits and costs of environmental damages, and the advantages and disadvantages of a range of environmental policies.

### Prerequisite

ECON 119 with a grade of C-minus or higher.

### Text (required)

*Environmental Economics and Policy*, seventh edition by Lynne Lewis and Thomas Tietenberg.

**ISBN10:** 1138587591 **ISBN 13:** 9781138587595

This text is available at the campus bookstore as well as online from a variety of sellers.

### Course Policies

The class itinerary is included in this syllabus. Please note the exam date and assignment due dates now. You may **reschedule the exam only** if you have a conflicting religious holiday. You must make arrangements to reschedule at least one week before the scheduled exam time.

The only excuses for a **missed exam** are verifiable medical emergencies or absences for students who participate in college-sponsored activities as specified in the [Class Attendance and Absences Policy](#).

Because solutions are posted soon after homework are handed in, I generally do not accept late homework. If you are sick or struggling, please do email or talk with me; we will work things out.

## Other Policies and Tips for Success

- **Attending class and taking good notes is of utmost importance**—a good deal of course content is not in the textbook, and drawing and analyzing graphs is a big part of this class. Make sure that you are ready to **take notes using pen/pencil and paper or tablet/pad with stylus**. If you miss class, get notes from a classmate right away and follow up with questions for Sarah. **Rewrite and edit your notes**, adding related material from the textbook or other related readings.
- Because of the importance of handwritten notes and to minimize classroom distractions, except for select in-class assignments or specific student accommodations, **laptop use is prohibited**.
- Read actively and **write down questions to ask in class or office hours**.
- **Visit Sarah and Brynn often** to make sure that you are clear on ideas presented in class.
- Go to **preceptor office hours to work on homework with classmates. Collaborate with your classmates in study groups**. You must, however, write your own homework answers.
- **Check your email and Moodle regularly**. Sarah and Brynn use email and Moodle to regularly update and clarify homework questions and office hour schedules and locations.
- **Turn off your cell** or put it to sleep before coming to class. If you must check it, leave the room first, including during breaks.

### Concern for Students' Overall Well-Being:

I care first and foremost about your overall well-being. If you are struggling in this class or in life, please let me know. I can help you strategize about the course and I can refer you to great people who can help you. [This](#) site has many resources.

### Accommodations for Students with Disabilities

I am committed to helping you be successful in this course. Accommodations are available for students with documented disabilities. Follow the links on [this page](#) to request or renew accommodations. Please do this early in the semester to ensure that necessary accommodations are approved so that you can begin the semester successfully.

### Academic Honesty and Artificial Intelligence

Cheating on exams, copying another's homework solutions (including any solutions found online), or failure to acknowledge the contributions of others' work to your own are serious offenses. Any work submitted by you should reflect both your own *ideas* and your own *language*. You must properly cite any resources you have consulted, including all types of generative AI (text, code, images, video, audio, translation). To be clear, in this class, **copying text generated using AI such as ChatGPT and using it in your assignments is both cheating and plagiarism**.

Cheating or failure to properly reference sources **will result in a failing grade for the exam or assignment and may result in a failing grade for the course. All cheating and plagiarism will be reported to the Director of Academic Programs.** For additional information on academic honesty, please consult the [Student Handbook](#) and this [Academic Programs site](#). If you have any questions about citation or about what constitutes academic honesty in this course or at Macalester College in general, please feel free to raise these questions in class and/or contact me to discuss your concerns.

### **Inclusivity**

I am committed to providing a safe and equitable learning environment for students. I insist that we all treat each other with respect and act professionally, adhering to the American Economic Association [code of conduct](#). We will respect all viewpoints and identities, and all levels of comfort with the material. We as learners and teachers all bring various experiences and life contexts to this course. These differences will emerge in class and be part of what we negotiate and benefit from as a developing community. I hope you will feel comfortable coming to me to express any concerns or suggestions; this is an iterative process that requires the collaboration of all.

### **Grading**

Coursework will be weighted as follows:

Questions of the Day	10% (10 @ 1% each)
Homework	30% (6 @ 5% each)
Exam	20%
Policy Analysis	
Proposal	4%
Policy Description	4%
Theory	4%
Complete Draft	4%
Final Policy Analysis	20%
Presentation	4%

### **Questions of the Day (QOTD)**

Questions of the Day are designed to ensure that you have completed and understood course material in readings. Responses will be graded on a pass/fail basis. Due dates are indicated with asterisks (\*) on the course schedule below. Hand in each QOTD on Moodle by **1:00PM** the day it is due. The bottom two scores will be dropped.

### **Homework**

Six homework assignments will enable you to apply course material. I urge you to work together on your homework, but **each of you must use your own words to write up your own assignment.** Homework will be challenging and comprehensive, so starting them early and working on a section each day is a good idea. Please type all written answers. You may draw graphs by hand, but you must insert images of your graphs into your typewritten homework, save your homework as a .pdf, and upload it to Moodle. Your submitted homework must be in the original order of the questions. Due dates are marked on the schedule below. Solutions will be posted to Moodle.

## Exams

There is one **in-class exam** to help you solidify your understanding and ability to use the main models of environmental economics.

## Policy Analysis

You will use economic theory and empirical evidence from other researchers to analyze a real-world environmental policy. You may complete this project on your own or in teams of two or three. To find a policy on which to focus, you might brainstorm by browsing the topics in your textbook, at [Resources for the Future](#) (RFF), in the [Review of Environmental Economics and Policy](#), or at [Environmental Protection Agency](#), [World Bank Environment](#), [UN Environment Program](#), the [European Commission's Environment](#) page, or the government environment pages of countries, states, or regions in whose policies you are most interested.

Note that you must choose a policy on which empirical evidence of effectiveness exists—this means you may not analyze a policy that has not yet been implemented. But, you can learn about the likely effectiveness of a proposed policy by examining the effects of a similar, already-implemented policy, and our curiosity about a potential future policy can be excellent motivation for studying the effects of existing ones.

To find articles related to your topic, you might search [Google Scholar](#), [JSTOR](#), [EconLit](#), [ScienceDirect](#), the [National Bureau of Economic Research \(NBER\)](#), or again, [Environmental Protection Agency](#), and [Resources for the Future](#).

Did you know? A great way to find papers that relate to a research topic is to find one good one in Google Scholar and then click on the “Cited By” link.

Search early and ask me for suggestions.

## Paper Stages (All of these should be done in complete, unnumbered paragraphs)

### A. Project Proposal (1-2 pages)

- (1) Use descriptive statistics to motivate your study and to make the case for the relevance and importance of your policy area. All statements and claims made here must be substantiated and citations provided.
- (2) Introduce and briefly explain the *specific* policy that you would like to analyze, providing a rationale for your choice by linking the policy description to your motivation in (1).
- (3) In both (1) and (2), use [Chicago Manual of Style](#) in-text citations to give credit to any source from which you draw information.
- (4) Include a bibliography. This bibliography should consist primarily of research papers on your topic published in peer-reviewed economics journals or published as working papers by such outlets as the NBER or RFF—you are showing me here that you have located a set of papers from which you will draw your analysis in a later stage. It should also include any sources you referenced in your text. Use Chicago Manual of Style reference list citation style.

## **B. Policy Description (3-4 pages)**

- (1) Revise and refine step (1) from your proposal, taking care to respond to any comments made by Sarah on your proposal. By now you should be confident that your paper is not only interesting but that it is also *feasible*.
- (2) Explain your policy in detail. Be sure to explain where it applies, when it was first applied and whether it continues, what kind of policy it is (e.g. command and control, tax or other price instrument, permit system, voluntary program, information as regulation, etc.), how and by whom it is enforced, why it was implemented (as opposed to other options), and the other details of how it functions.
- (3) Carefully cite your sources using Chicago in-text citations and provide a reference list at the end.

## **C. Theory (5-6 pages)**

- (1) Revise and refine steps (1) and (2) from your Policy Description stage, taking care to respond to any comments made by Sarah on that stage.
- (2) Explain what an efficient outcome means in the environmental context of your policy analysis. Then, using graphs and or equations drawn from class, your textbook, and readings on your policy, predict the likely behavioral effects of your policy, and explain whether and under what conditions your specific policy can result in an allocatively efficient outcome, a cost-effective outcome, and/or the reasons your policy is not capable of attaining efficiency and/or cost effectiveness.

Did you know? You may not copy and paste graphs, figures, or tables from another source into your academic papers, even if you give credit to the source. Instead, make your own graphs using the drawing functions in Word or Google Docs, or on a tablet using a program like Notability.

- (3) Then, choose and justify your choice of another criterion with which you will evaluate your policy. Possible criteria include but are not limited to equity and justice considerations (across income, racial, ethnic, or other groups), implications for market power, dynamic efficiency, budgetary implications (revenue and outlays), long run political feasibility, and enforceability.
- (4) Explain what measure or measures the literature uses to evaluate the policy using the criterion you chose in (3).
- (5) Carefully cite your sources using Chicago in-text citations and provide a reference list at the end.

## **D. Draft, and Final Policy Analysis (10-13 pages, including graphs and references)**

Complete the steps below for your draft and for your final policy analysis:

- (1) Write your policy evaluation. Use evidence from empirical papers on your policy to evaluate its efficiency and/or cost effectiveness, and to assess it using the other criterion you have chosen. Be sure to focus on *specific*

*measures* that link directly to your theory section. This is the most challenging part of your paper; do not put this off. You should definitely talk with Sarah about this section.

- (2) Revise your theory submission, taking care to respond fully to Sarah's feedback, and making sure that it sets up the analysis you did in (1). Then revise again your policy evaluation in (1) so that it ties into the theory section directly.
- (3) Write your final paper, drawing upon the work you have already done.

Did you know? You should always write the introduction to your paper *last*. This is because your introduction tells the reader what will follow in the paper—so you need to have finished the rest of your paper to know what to say in the intro!

Your final paper should contain the following sections, drawing on your previous stages. You should include section headings.

### Introduction

Your first paragraph should motivate your topic and draw in the reader. Use descriptive statistics to motivate your study and to make the case for the relevance and importance of your policy area. All statements and claims made here must be substantiated and citations provided.

Then, introduce and briefly explain the *specific* policy that you analyze, providing a rationale for your choice by linking the policy description to your motivation in your first paragraph.

Your third paragraph should briefly summarize the results of your analysis. Be very brief here.

The last paragraph of the introduction should tell the reader what each of the subsequent sections of the paper contains (i.e. provide a "road map" for the rest of the paper).

### Policy Description

Explain your policy in detail. Be sure to explain where it applies, when it was first applied and whether it continues, what kind of policy it is (e.g. command and control, tax or other price instrument, permit system, voluntary program, information as regulation, etc.), how and by whom it is enforced, why it was implemented (as opposed to other options), and the other details of how it functions.

### Theory

Explain what an allocatively efficient outcome means in the environmental context of your policy analysis. Then, using graphs and or equations drawn from class, your textbook, and readings on your policy, predict the likely behavioral effects of your policy, and explain whether and under what conditions your specific policy can result in an allocatively efficient outcome, a cost-effective

outcome, and/or the reasons your policy is not capable of attaining allocative efficiency and/or cost effectiveness. Link this theory directly to your policy description.

#### Policy Evaluation

Use evidence from empirical papers on your policy to evaluate its allocative efficiency and/or cost effectiveness, and to assess it using the other criterion you have chosen. Be sure to focus on *specific measures* that link directly to your theory section.

#### Conclusion

- (1) Briefly summarize the results of your analysis.
- (2) List any caveats to your preliminary conclusions.
- (3) Describe directions for future research.

References (single-space each citation and put a space between citations)

Tentative Course Schedule (Subject to Change)

<b>Jan.</b>	19	Introduction	
	22	Externalities	*
	24	Common resources and public goods	*
	26	Public goods	
	29	Sustainability: Three definitions	*
	31	Command and Control regulations	Homework 1
<b>Feb.</b>	2	Incentives: Pollution Charges and Tradable Permits	
	5	Experiences with Tradable Permit Systems	*
	7	Incentives: Taxes, subsidies, and multi-part instruments	
	9	Incentives: Taxes, subsidies, and multi-part instruments	Paper Proposal
	12	Estimating effects of a policy intervention	
	14	Information as regulation: Nudges and behavior	Homework 2
	16	Term paper workshop	
	19	Benefits estimation	*
	21	Benefits estimation	
	23	Costs estimation: The effect of regulation on jobs	Policy Description
	26	Exam review	Homework 3
	28	In-class exam	
<b>March</b>	1	Cost-Benefit analysis	
	4	Examples of Cost-Benefit analysis	*
	6	Cost-Benefit analysis in the U.S. federal government	
	8	Theory workshop	Homework 4
	11-15	Spring Break: No class	
	18	Transportation: Theory	
	20	Transportation: Evidence	*
	22	Water Pollution: Theory	Theory
	25	Water Pollution: Evidence	*
	27	Toxics and environmental justice: Concepts	
	29	Toxics and environmental justice: Location decisions	*
<b>April</b>	1	Climate Change: The nature of the problem	
	3	Climate Change: Integrated Assessment Models	Homework 5
	5	Climate Change: Energy policy	*
	8	Climate Change: Policy choices	
	10	Fat Tails and the Discmal Theorem	
	12	Paper draft workshop	*
	15	No Class: Honors Day (Extra Credit Opportunity!)	Complete Draft
	17	Catastrophe	
	19	The importance of timing in optimal climate policy	*
	22	Paper presentations	Homework 6
	24	Paper presentations	
<b>April</b>	26	Paper presentations	
	29	Summative discussion	
<b>May</b>	4	Hand in Final Paper by 5PM	Final paper

\*Questions of the Day