Charting a Sustainable Future:
Integrating Economics and Policy for Climate Action

AREC 254, Fall 2026

Syllabus

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1 Course Description

This course explores climate change through an economic perspective, focusing on how economic principles can inform effective climate policies. Students will learn about the causes and impacts of a changing climate, evaluate various policy approaches, and develop critical thinking skills. By the end of the semester, you will understand economic tools for addressing climate change and the associated political, socioeconomic, and ethical complexities.

2 Learning Outcomes

By the end of the course, I will expect you to:

1. Identify and understand the unique economic and policy challenges associated with climate change.
2. Describe the tools and techniques that analysts and policymakers use to quantify the economic impacts of climate change and design climate policies.
3. Demonstrate an understanding of basic concepts and terminology used in climate change economics and policy.
4. Demonstrate an understanding of the complex political, socioeconomic, and ethical issues that make climate action so difficult to achieve.
5. Communicate these issues effectively both orally and in writing.
6. Articulate how this course has broadened your personal perspective on climate change, and what to do about it.

3 Prerequisites

This is an entry-level course with no prerequisites. It assumes **no prior knowledge of climate change, economics, or policy**. Any background in climate science, basic economic theory, or statistics will be helpful, but it is not essential.

4 Required Resources

4.1 Course Website

We will conduct most course logistics on ELMS. This includes downloading and submitting assignments, posting blogs, and posting grades. I will also upload lecture slides, notes, readings, and in-class exercises to ELMS.

4.2 Readings

Throughout the semester, I will assign several readings from the following book:

- **[Nordhaus:]** Nordhaus, William. *The Climate Casino: Risk, Uncertainty, and Economics for a Warming World*. Yale University Press, 2013. ISBN: 9780300203813.

It is AVAILABLE DIGITALLY THROUGH UNIVERSITY LIBRARIES (free with your UMD credentials). Physical copies are also available online for under $30, if (like me) you prefer paper to screens.

I will provide additional weekly readings on ELMS. Some "readings" will be podcasts and videos.

4.3 Slides and Notes

I will post lecture slides along with written notes on the concepts we cover in class. These can serve as review materials and study guides. They are not a substitute for the assigned readings.

4.4 Software

Assignments for this course will not require any specialized software—outside of an internet browser, and Microsoft Word, Excel, and PowerPoint (or Google equivalents).

5 Course Structure

5.1 Class Meetings

This course will meet in person, **Tuesdays and Thursdays, 2:00–3:15pm Eastern Time**, in **Cambridge Community Center Room 1100**.

The semester is organized into 15 modules. Most modules span two class periods. Each module's first class period (typically on Tuesdays) will follow a lecture-style format, with assigned readings to be completed beforehand. A module's second class period (typically on Thursdays) will build on this lecture with an interactive and/or discussion-based format. This may include case studies, mock debates, short presentations, group activities, and games. I expect each of you to attend and actively participate, as this will be crucial for the success of this course.

5.2 Attendance and Participation

I expect you to attend class in person. Actively engaging during lectures will help you keep up with new material, allowing you to ask questions and interact with your classmates. Being present and engaged in class will contribute to the participation portion of your final grade.

5.3 Office Hours

I will hold office hours **3:30–4:30pm on Tuesdays** and **9:30–10:30am on Thursdays**, in **Symons Hall 2104**. While I prefer in-person office hours, I am happy to use Zoom on a case-by-case basis. Please feel free to show up unannounced to office hours—no appointments necessary!

5.4 Cell phones and Laptops in the Classroom

Research has shown that electronic devices present an irresistible distraction that detracts from the classroom environment and interferes with learning and active participation. The bottom line is that cell phone or laptop use during class disrupts the learning experience for other students and shows disrespect for everyone.

My expectation is that **all cell phones and laptops will be silenced and put away for the duration of each class period**. If I see you using a phone, laptop, or headphones during class, I will ask you to put it away or leave the room. I will make exceptions for ADS accommodations and for interactive in-class activities. Disregarding this policy will impact your in-class participation grade.

6 Policies and Resources

It is our shared responsibility to know and abide by the University of Maryland's policies that relate to all courses, which include topics like:

- Academic integrity
- Student and instructor conduct
- Accessibility and accommodations
- Attendance and excused absences

- Grades and appeals
- Copyright and intellectual property

Please visit www.ugst.umd.edu/courserelatedpolicies.html for the Office of Undergraduate Studies' full list of campus-wide policies. I am happy to discuss them further if you have questions.

6.1 Contacting Me

Please email me at lpreonas@umd.edu with any personal, academic, or intellectual questions/concerns that you might have. Emailing me directly is safer than messaging me through ELMS, since ELMS-forwarded emails typically bypass my primary inbox. **Please put "AREC254" in the subject line.** Do not be shy about sending follow-up emails if I forget to respond. As a general guideline, please **check the syllabus and ELMS** before emailing questions like "When is the problem set due?".

6.2 Course Announcements

I will send **important** announcements via ELMS messaging. Please make sure that your email and announcement notifications (including changes in assignments and/or due dates) are enabled in ELMS, so you do not miss any messages. You are responsible for checking your email and Canvas/ELMS inbox with regular frequency.

6.3 Communication with Peers

With a diversity of perspectives and experience, we may find ourselves in disagreement and/or debate with one another. As such, it is important that we agree to conduct ourselves in a professional manner. We must work together to foster a classroom environment in which we can respectfully discuss and deliberate controversial questions. I encourage you to confidently exercise your right to free speech—bearing in mind, of course, that you will be expected to craft and defend arguments that support your position. Free speech has its limit, and this course is **NOT** the space for hate speech, harassment, or derogatory language. I will make every reasonable attempt to create an atmosphere in which each student feels comfortable voicing their argument without fear of being personally attacked, mocked, demeaned, or devalued.

Any behavior (including harassment, sexual harassment, and racially and/or culturally derogatory language) that threatens this atmosphere will not be tolerated. Please alert me immediately if you feel threatened, dismissed, or silenced at any point during our semester together and/or if your engagement in discussion has been in some way hindered by the learning environment.

6.4 Disability Accommodations

If you have a documented disability and wish to discuss academic accommodations with me, please email me as soon as possible.

6.5 Learning Assistance

I encourage you to visit tutoring.umd.edu to learn more about the wide range of campus resources available to you. For help sharpening your communication skills, you can schedule a virtual appointment with the campus Writing Center. There are a wide range of resources to support you with whatever you might need (see go.umd.edu/assistance). If you just need someone to talk to, visit counseling.umd.edu. Most services are free because you have already paid for them, and everyone can benefit from these resources . . . all you have to do is ask.

7 Assignments

Assignments	**% of Grade**
Reading quizzes	10%
Problem sets	20%
Blogs	10%
In-class participation	20%
Exams	40%

7.1 Reading quizzes (10%)

I will administer (surprise!) quizzes on the assigned readings at the beginning of 6 classes throughout the semester. These quizzes will be **easy**—if you've read the readings. They are intended to motivate you to keep up with the readings throughout the semester. If you are absent or late to class, you will receive zero credit on the quiz (exceptions only for absences with a doctor's note). At the end of the semester, I will drop your two lowest quiz grades, so that only 4 of the 6 quizzes count toward your final grade.

7.2 Problem sets (20%)

There will be 4 problem sets, which will include short-answer questions and some light spreadsheet math. While I encourage you to work in small groups on the problem sets, you must each type out and turn in **your own answers**. Duplicate copies will receive 0 credit. I will grade problem sets on a scale of 1 to 5. Late problem sets will lose 1 point for each day past their due date.

7.3 Blogs (10%)

One goal of this course is to connect the concepts we discuss in the course to your life outside of this course. To this end, you will each be required to write two "blogs". For each blog, you will find a news article in the popular press (meeting certain criteria), and write a short blog summarizing and analyzing it. Your blog should discuss the article's strengths and weaknesses through an economics-of-climate-change lens. You will post your blogs to ELMS for the class to read. After submitting each blog assignment, I will also require each of you post 2 short comments on *other* students' blogs. Each assignment will be worth 5% of your final grade—which will reflect *both* your own blog *and* your blog comments on others' blogs. Late blogs (and comments) will receive zero credit.

7.4 In-class participation (20%)

This portion of your grade will reflect the extent to which you attend class and actively participate in discussions, case studies, debates, games, etc. You don't need to be the loudest or most vocal participator to receive a high participation grade. However, actively engaging your peers can provide positive spillovers and help everyone learn more effectively.

To evaluate your participation in an objective manner, I will develop a rubric where you will be able to earn participation credit in select (mainly interactive) class periods. Note: while I would prefer to focus on ways to earn positive participation credit, it is also possible to earn negative participation credit. Any behavior that is rude, distracting, non-inclusive, or disrespectful of your classmates will hurt your participation grade.

7.5 Exams (40%)

There will be two exams. The first exam will be in class on **Thursday, October 15**. The second exam will be during the designated final exam period (**Thursday, December 17, 10:30am–12:30pm**) in the normal classroom (CCC 1100). Both exams will be closed-book, closed-note, closed-phone, and closed-peer. Each exam will focus on material covered in the most recent half of the course. However, since the course material builds cumulatively, the second exam may include some material from earlier in the semester. Each exam will contribute 20% of your final grade.

8 Grading

8.1 Academic Integrity

The University's Code of Academic Integrity is designed to ensure that the principles of academic honesty and integrity are upheld. In accordance with this code, the University of Maryland does not tolerate academic dishonesty. Please ensure that you fully understand this code and its implications, as all acts of academic dishonesty will be dealt with in accordance with its provisions. All students are expected to adhere to this code. It is your responsibility to read it and know what it says, so

you can start your professional life on the right path. As future professionals, your commitment to high ethical standards and honesty begins with your time at the University of Maryland.

Course assistance websites (such as CourseHero) and AI-generated content (such as from ChatGPT, Gemini, or Claude) are not permitted under any circumstances. Any use of AI-generated material—such as plugging a problem set into ChatGPT—would be a violation of academic integrity. Generative AI is prone to inaccuracies and bias, and does not replicate the critical thinking steps necessary for success in this course (and beyond). If you are unsure about how to use AI tools in an acceptable manner, please ask me!

Any collaboration on graded assignments is strictly prohibited unless otherwise stated. Please visit the Office of Undergraduate Studies' list of campus-wide policies and reach out if you have questions. If you ever feel pressured to comply with someone else's academic integrity violation, please reach out to me immediately. If you are ever unclear about acceptable levels of collaboration, please ask!

8.2 Grading

A graduate student will serve as grader for this course. I will work closely with her to establish grading rubrics and answer keys for each assignment and exam. All grades will be posted on ELMS. If you have a grading question that you would like to discuss, please come to office hours or email me.

Regrade Requests: I take grading very seriously, in order to ensure that all students' answers are evaluated fairly and consistently. If you believe that there has been a grading error on an assignment or exam, please email me a clear explanation of the error **within 3 days of the date the assignment was returned**, and I will reevaluate your answer and grade myself. All regrade decisions are final.

8.3 Letter Grades

Final grades will follow the standard scale:

100.0–97.0	A+	96.9–93.0	A	92.9–90.0	A−		
89.9–87.0	B+	86.9–83.0	B	82.9–80.0	B−		
79.9–77.0	C+	76.9–73.0	C	72.9–70.0	C−		
69.9–67.0	D+	66.9–63.0	D	62.9–60.0	D−	59.9–0	F

I will curve individual problem sets and exams to adjust for difficulty. If the course ends up being harder than anticipated, I may choose to move the cutoff points for final grades down. However, I will not move the cutoff points up (i.e., to make it harder to get an A).

9 Course Schedule

Module	Date	Big Question*	Detailed Topic*
	Sept 1	Course introduction	
Part I: Causes and Consequences of Climate Change			
1	Sept 3	What is climate change?	Intro to climate change
2	Sept 8	How are the climate and the economy linked?	Climate change & the economy
2	Sept 10		
3	Sept 15	Why is climate change an economic problem?	Externalities and public goods
3	Sept 17		
4	Sept 22	What are the costs and benefits of climate change?	Cost-benefit analysis
5	Sept 24	Should I care about my grandchildren's future?	Discounting
6	Sept 29	Can we put a price on climate impacts?	The social cost of carbon
6	Oct 1		
7	Oct 6	Who bears the burden of climate impacts?	Equity and climate justice
7	Oct 8		
	Oct 13	*Fall Break*	
	Oct 15	**Exam #1**	
Part II: Approaches to Solving Climate Change			
8	Oct 20	How would an economist solve climate change?	Optimal climate policy
8	Oct 22		
9	Oct 27	How do politicians (or normal people) approach climate policy?	Second-best policies
9	Oct 29		
10	Nov 3	Who pays for climate policy?	Equitable climate policy
10	Nov 5		
11	Nov 10	Does behavior undermine climate policy?	Unintended consequences
11	Nov 12		
12	Nov 17	Can one country address climate change on its own?	International cooperation
13	Nov 19	But wait, can't technology save us?	Geoengineering
	Nov 24	*Class canceled*	
	Nov 26	*Thanksgiving*	
13	Dec 1	But wait, can't technology save us?	Geoengineering
14	Dec 3	What if we just learn to live with climate change and start composting?	Adaptation & behavioral change
14	Dec 8		
15	Dec 10	How are we fighting climate change now?	Panel of external speakers
	Dec 17	**Exam #2 (normal room, 10:30am–12:30pm)**	

** Subject to change.*

10 Reading List

For each module, you will be required to complete all readings by the date listed below.

Module 1: What is climate change? (Sept 3)

- Hsiang & Kopp: "An Economist's Guide to Climate Change Science." *Journal of Economic Perspectives*, 2018.
- Nordhaus: Chapters 4–5.
- Ritchie: "Are We the Last Generation — or the First Sustainable Generation?" TED Talk. LINK

Module 2: How are the climate and the economy linked? (Sept 8)

- Nordhaus: Chapter 14.
- Covert, Greenstone, and Knittel: "Will We Ever Stop Using Fossil Fuels?" *Journal of Economic Perspectives*, 2016.
- NPR Short Wave: "Climate Change is Tough on Personal Finances." 8, 2022. LINK

Module 3: Why is climate change an economic problem? (Sept 15)

- Nordhaus: Chapter 3.
- Keohane & Olmstead: *Markets and the Environment*, 2016 (second edition). Chapter 2 (pp. 11–30, can skip text boxes).
- Fraser Institute: "Essential Coase: The Lighthouse in Economics." LINK

Module 4: What are the costs and benefits of climate change? (Sept 22)

- Keohane & Olmstead: *Markets and the Environment*, 2016 (second edition). Chapter 3 (pp. 35–56, can skip text boxes).
- Planet Money podcast: "Your Life Is Worth $10 Million, According to the Government." LINK

Module 5: Should I care about my grandchildren's future? (Sept 24)

- Nordhaus: Chapter 16.
- Prest: "Discounting 101." Resources for the Future, 2020.

Module 6: Can we put a price on climate impacts? (Sept 29)

- Nordhaus: Chapters 6 & 12.
- Rennert & Kingdon: "Social Cost of Carbon 101." Resources for the Future, 2019.
- RFF: Social Cost of Carbon explainer. LINK
- **[for Oct 1, to be assigned in groups]:** Nordhaus Chapter 7, 8, 9, 10, or 11; or Miguel TED Talk [LINK]; or Rockström TED Talk [LINK]

Module 7: Who bears the burden of climate impacts? (Oct 6)

- Ricke, Drouet, Caldeira, & Tavoni: "Country-level Social Cost of Carbon." *Nature Climate Change*, 2018.
- Lustgarten: "The Great Climate Migration." *New York Times Magazine*, 2020. LINK ($)
- Bullens: "As Arctic Ice Vanishes, Maritime Traffic Boom Fuels the Climate Crisis." *France 24*. June 8, 2025. LINK

Module 8: How would an economist solve climate change? (Oct 20)

- Nordhaus: Chapters 19–20.
- Hausman: "Understanding Carbon Tax with Professor Catherine Hausman." LINK
- Roberts: "Washington Votes No on a Carbon Tax—Again." *Vox*. Nov. 6, 2018. LINK ($)

Module 9: How do politicians (or normal people) approach climate policy? (Oct 27)

- Nordhaus: Chapter 22.
- Planet Money podcast: "Inflation Reduction Actually." August 19, 2022. LINK
- Newell: "Federal Climate Policy 101: Reducing Emissions." *Resources* Issue 207, pp. 8–13. 2021.
- **Optimal but encouraged**: the rest of *Resources* Issue 207!

Module 10: Who pays for climate policy? (Nov 3)

- Burtraw, Domeshek, & Keyes: "Carbon Pricing 104: Economic Effects across Income Groups." *Resources for the Future*, 2020.
- Schlanger: "Choking to Death in Detroit: Flint Isn't Michigan's Only Disaster." *Newsweek*, March 30, 2016.
- Resources Radio podcast: "Who Wants Wind and Solar in the Communities?, with Sarah Mills." December 13, 2022. LINK

Module 11: Does behavior undermine climate policy? (Nov 10)

- Owen: "The Efficiency Dilemma." *The New Yorker*, 2010. LINK
- Sallee: "Does CAFE Work?" *Energy Institute at Haas* blogpost. April 18, 2018. LINK
- Planet Money podcast: "Sell Me Your Climate Bombs." September 25, 2020. LINK
- Planet Money podcast: "Emission Impossible." May 7, 2021. LINK

Module 12: Can one country address climate change on its own? (Nov 17)

- Nordhaus: Chapter 21.
- Clausing & Wolfram: "Carbon Border Adjustments, Climate Clubs, and Subsidy Races When Climate Policies Vary." *Journal of Economic Perspectives*, 2023.
- World Bank Carbon Pricing Dashboard. LINK

Module 13: But wait, can't technology save us? (Nov 19)

- Nordhaus: Chapter 13.
- Vox explainer video: "Should We Reflect Sunlight to Cool the Planet?" LINK
- Jabr: "The Scientists Making Antacids for the Sea to Help Counter Global Warming." *New York Times Magazine*, 2026. LINK ($)

Module 14: What if we just learn to live with climate change and start composting? (Dec 3)

- Pindyck: *Climate Future: Averting and Adapting to Climate Change*, 2022. Chapter 1 (pp. 1–18) and Chapter 7 (pp. 171–189).
- Barnard: "The $199 Billion Sea Wall That Could Defend New York . . . or Not." *New York Times*, January 17, 2020. LINK ($)

Module 15: How are we fighting climate change now? (Dec 10)

- No readings.