Harris School of Public Policy
University of Chicago
PPHA 39930

Amir Jina
amirjina@uchicago.edu

Spring 2025: International Climate Policy PPHA 39930

# Information about this course

### Background and Goals

Anthropogenic climate change is one of the most difficult challenges faced by modern society. The time to tackle it is running out, and the setbacks of increasingly denialist or lukewarm political administrations are just about to be realised. This decade is the last where society will have a chance to avoid the worst impacts. If we fail to mitigate the causes of climate change, we will be left with only options to adapt. No matter what career you pursue over the next 10 years, it's unlikely that it will be untouched by some considerations of climate change and its impacts. Being able to look at and engage with climate change from multiple perspectives has never been more important.

This interdisciplinary course covers the tools and insights from economic analysis, environmental science, and statistics that inform our understanding of climate change impacts, the design of mitigation and adaptation policies, and the implementation of these policies. Students will develop a mastery of key conceptual ideas from environmental economics relevant for climate change and acquire tools, both theoretical and empirical, for conducting analyses of climate impacts and policies. The goal is to help students become informed and critically-minded practitioners of evidence-based, climate-informed policy making.

Climate change is also the subject of ongoing debate and discussion. 2025 will be incredibly relevant for this debate. We will assess and digest the global commitments of the COP29 climate negotiations and discuss what, if anything, can be achieved at COP30. We will additionally discuss major issues that have arisen in the past few years about climate policy. Be prepared to share and read news articles that cover many of these current topics. I will attempt to draw from my own experiences with ongoing climate policy debates.

### Prerequisites

The aim of the class is to provide a basic common language and set of ideas about climate change. While some experience with introductory statistics might be helpful, the class is structured so that students from any discipline can engage with the ideas.

### Relationship to other programs

This course is part of environmental and international development policy programs.

### List of Course Texts, Required or Recommended Materials/Equipment

(1) Course slides posted weekly on Canvas
(2) Readings for each week to be provided on this syllabus.

## Class Details

In-person class with material delivered in lecture style using slides, with frequent solicitation of discussions and period informal group discussions.

Attending remotely or accessing recordings: It's possible, but *with instructor permission in advance.*

Readings: Readings are on the full syllabus and files or links will be provided in the modules for each topic. Module readings will be the most up-to-date

## Communication

All communications with me should be made **through canvas message only**. I will receive an email notification about this, in any case. The main reason for this is that messages sent through canvas will be categorized by course number and year both in my emails and in canvas itself. ***I won't respond to emails about the class, only canvas messages.*** For anything unrelated to class, feel free to email ☺

**Class Meeting Time:**
Tuesday / Thursday 11.00AM – 12.20PM, Keller 0001

**Office hours:** Virtual office hours (around 2 hours per week). Details on front page of canvas

**Teaching Assistants:**

- Xerac Akhtar (xeraca@uchicago.edu)
- Katherine Tu (katherinetu@uchicago.edu)
- Renge Zou (rengezou@uchicago.edu)

## Student assignments

| Component | Date available | Date due | Percent of grade | |
|---|---|---|---|---|
| **Individual assignment 1** | **Mar 28** | **Apr 9** | **15%** | |
| **Individual assignment 2** | **Apr 10** | **Apr 23** | **15%** | |
| **Individual assignment 3** | **Apr 24** | **May 7** | **15%** | |
| **Individual assignment 4** | **May 8** | **May 21** | **15%** | |
| **Group assignment** | **TBD** | **TBD** | **30%** | |
| **Reading reflection + response** | | | **5%** | **3 for 5%, 2 for 3%, 1 for 1%** |
| **General interest posts** | | | **5%** | **3 for 5%, 2 for 3%, 1 for 1%** |

Reading reflections: Throughout the quarter you will be required to do **THREE** reading reflections. One should be in the first 3 weeks, one in the next 3 weeks, and one in the final 3 weeks. The content of these will not be graded, but they will be incorporated into some class discussion. Please post your reflection as a response to that weeks' reading reflection discussion topic.

Reading reflection responses: In addition to the three reflections, you will be required to respond to any three reading reflections of other students, at any time in the quarter. Ideally, you wouldn't limit this to three! Try to engage with their questions, discuss their thoughts, etc.

General interest posts: One of the most effective ways I have found of soliciting input from students about contemporary topics they'd like to discuss is through general interest posts on Canvas. These can be anything – visualizations, news articles, social media posts, podcasts, etc. Anything related to climate change or climate policy that you'd like your instructors or fellow students to see. Over the quarter, please submit 3 of these general interest posts for full points.

Individual assignments: There will be three individual assignments throughout the quarter. These will require a combination of data analysis and interpretation, sometimes quantitative, sometimes qualitative. All data analysis is expected to be replicable, with you submitting code in addition to your answers.

Group project: There will be one group project during the quarter. This will involve students, in groups, analyzing the physical and social risks from climate change in a particular country, analyzing the commitments to reduce emissions made under the Paris Accords, and critically assessing whether these commitments are sufficient given the risks they face. Resources will be provided.

## Grading policies and procedures

Late submission policy: Each student will have **two 24-hour "tokens"**. You can use these one-at-a-time or both together for no-questions-asked extensions to deadlines for any of the assignments. If assignments are late with no tokens remaining, and with no other explanation, you'll lose 5% per day of overage. We're all busy and times are weird, so if you've got circumstances that involve extra difficulty, message your TA and I about it.

Re-Grades: Any item for which there is a re-grade request must be done within 7 days after we return the assignment or exam to you. The request for re-grade MUST be done in writing and attached to the assignment. In such cases, we will re-grade the whole assignment– not just the question you identified. As a result, your grade may be lower.

Grade distribution: While there is no set distribution, in prior years

## Detailed Syllabus and Reading List (may change during the quarter)

Readings listed under "required readings" for each topic are, unsurprisingly, required readings. Some extra articles are provided under "more information" if you want to explore a topic more. Reading reflections can cover any of the readings. Some topics will be spread over multiple weeks. The weekly modules on canvas will indicate which readings will be most relevant for that week's classes. All required reading pdf files will be available in the modules on canvas.

### Part I: Climate Change and Climate Impacts (weeks 1-4)

1) A Crash Course in Climate Science for Policy-Makers (plus class introduction)

*Topics: Greenhouse effect; Climate culprits; Residence time; Emissions trends and distribution; Emissions scenarios; Emissions sources; Global climate models; IPCC coordination of climate science; Heterogeneity of climate changes; Energy and energy intensity; Climate sensitivity;*

Required reading

- IPCC, 2021: Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. In Press.
- Carbon Brief (2019), "CMIP6: the next generation of climate models explained" https://www.carbonbrief.org/cmip6-the-next-generation-of-climate-models-explained
- Clark, D. (2011). What's the target for solving climate change? The Guardian. http://www.guardian.co.uk/environment/2011/nov/14/climate-change-targets

More information

- Hayhoe, K., D.J. Wuebbles, D.R. Easterling, D.W. Fahey, S. Doherty, J. Kossin, W. Sweet, R. Vose, and M. Wehner, 2018: Our Changing Climate. In Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II https://nca2018.globalchange.gov/chapter/2/
- J. T. Kiehl and Kevin E. Trenberth, Earth's annual global mean energy budget, *Bull. Amer. Meteor. Soc.* **78** (1997), 197–208.

2) Humans and the Environment

*Topics: The Commons; Externalities and Public Goods; Energy and growth; "Common but Differentiated Responsibilities"; International climate negotiations; Adaptation; Mitigation; Uncertainty in emissions and parameters; Discounting and valuing the future; Social Cost of Carbon; Abatement costs; Optimal climate policy; Cost-benefit Analysis*

Required reading

- Fullerton, Don, and Robert Stavins. "How Economists See the Environment." Nature 395 (1998): 433–434.
- Keohane, Nathaniel O., and Sheila M. Olmstead. Markets and the Environment. Island Press, 2016. Chapters 1 and 2.
- Goulder, Lawrence and William A. Pizer (2008). The economics of climate change. In The New Palgrave Dictionary of Economics 2nd edition. Hampshire, UK: Palgrave Macmillan

More information

- Stern, Nicholas (2008), "The Economics of Climate Change", American Economic Review: Papers & Proceedings, 98(2), 1-37. Read up to Section 3.

3) Climate Impacts

*Topics: Biophysical impacts methods; Socioeconomic impacts methods; Integrated Assessment Models (IAMs); Biophysical impacts; Economic impacts; Adaptation; Hedonic regression; Panel regressions; dose-response;International climate impacts; US and wealthy country climate impacts; Developing nation impacts; socioeconomic impacts; dose-response; damage function; labour; agriculture; energy; health; conflict; ecosystems services; water; sea level rise impacts; TFP and GDP; Economic growth impacts;*

Required Reading

- Keohane, Nathaniel O., and Sheila M. Olmstead. Markets and the Environment. Island Press, 2016. Chapter 3 and 4.
- Carleton, T.A. and S.M. Hsiang (2016). "Social and economic impacts of climate". Science 353(6304).
- Hsiang, S. et al. (2017). Estimating economic damage from climate change in the United States. Science, 356(6345), 1362-1369.

More information

- Dell M, Jones B, Olken B. What Do We Learn from the Weather? The New Climate-Economy Literature. Journal of Economic Literature. 2014. Sec. 2.1 and 4.1
- Wagner, Gernot, and Martin Weitzman. "Inconvenient Uncertainties," New York Times, October 10, 2013

**Part II: Climate Policy in Theory and Practice (weeks 5-9)**

4) The International Climate Policy Framework

*Topics: UNFCCC, Kyoto Protocol, Paris Accord; IPCC; Leakage; European Union Emissions Trading Scheme (EU-ETS); Climate and Development; Mitigation, Adaptation, and Loss and Damage;*

Required reading

- Barrett, Scott (2008) "Climate treaties and the imperative of enforcement", Oxford Review of Economic Policy.
- Bodansky et al. (2015). "Facilitating linkage of climate policies through the Paris outcome" Climate Policy
- Victor (2015). Why Paris Worked: A Different Approach to Climate Diplomacy. https://e360.yale.edu/features/why_paris_worked_a_different_approach_to_climate_diplomacy
- Chan, Gabriel, Robert Stavins, and Zou Ji. "International Climate Change Policy." Annual Review of Resource Economics 10 (2018): 335-360.
- Aldy, J., B. Pizer et al. (2016). "Economic tools to promote transparency and comparability in the Paris Agreement". Nature Climate Change 6, 1000-1004.

More information

- Carbon Brief (2017) “Explainer: Dealing with the ‘loss and damage’ caused by climate change” https://www.carbonbrief.org/explainer-dealing-with-the-loss-and-damage-caused-by-climate-change

5) An Introduction to Climate Policy Instruments

*Topics: Mitigations and Adaptation, Emissions trading; Carbon pricing; Markets versus mandates; Cost-effectiveness; Political economy; Trade; Output and input taxes; Cap-and-trade*

Required reading

- Goulder and Parry, “Instrument Choice in Environmental Policy.” Review of Environmental Economics and Policy 2008.
- Gillingham, Kenneth, and James H. Stock. 2018. "The Cost of Reducing Greenhouse Gas Emissions." Journal of Economic Perspectives, 32 (4): 53-72.
- Stokes, Leah, and Matto Mildenberger. 2020. “The Trouble with Carbon Pricing”. https://www.bostonreview.net/articles/trouble-carbon-pricing/
- Podcast: Kellogg, Ryan. 2022. “Upending Conventional Wisdom on Carbon Pricing in the Power Sector”. https://epic.uchicago.edu/insights/upending-conventional-wisdom-on-carbon-pricing-in-the-power-sector-with-ryan-kellogg/

More information

- Keohane, Nathaniel O., and Sheila M. Olmstead. Markets and the Environment. Island Press, 2016. Chapters 5 and 8.
- Aldy, Krupnick, Newell, Parry, and Pizer, “Designing Climate Mitigation Policy.” Journal of Economic Literature, 2010 Section 3.
- Goulder “Markets for Pollution Allowances: What Are the (New) Lessons?” Journal of Economic Perspectives 27(1), Winter 2013.

6) National Climate Policies in Practice

*Topics: Power; Renewable energy; Transportation; Fuel and Energy efficiency; Marginal abatement curves; Energy access; Electrification; Energy policy in low income settings; “Energy ladder”; Innovation, technology; Research, development, and deployment; Renewable energy technology;*

Required reading

- Keohane, Nathaniel O., and Sheila M. Olmstead. Markets and the Environment. Island Press, 2016. Chapters 9.
- Newell, R., et al. (2013). “Carbon markets 15 years after Kyoto: lessons learned, new challenges.” Journal of Economic Perspectives, 27(1), 123-146.
- Ambec, Stefan, Mark A. Cohen, Stewart Elgie, and Paul Lanoie. "The Porter hypothesis at 20: can environmental regulation enhance innovation and competitiveness?." Review of environmental economics and policy 7, no. 1 (2013): 2-22.
- Committee on Assessing Approaches to Updating the Social Cost of Carbon (2017). Valuing Climate Damages. Executive Summary and Structure of the Estimation Process (pages 1-3 and 39-43).

More information

- Aldy, J.E. and W.A. Pizer (2009). Issues in Designing U.S. Climate Change Policy. Energy Journal 30(3). **read pages 179-191

- Kellogg, Ryan. Output and Attribute-Based Carbon Regulation Under Uncertainty. No. w26172. National Bureau of Economic Research, 2019.

7) Behavioural aspects of climate policy (shorter topic)

*Topics: Behavioural nudges; libertarian paternalism; baseline shifting; finite attention*

Required reading

- Allcott, Hunt, and Sendhil Mullainathan. "Behavior and energy policy." Science 327, no. 5970 (2010): 1204-1205.

8) Climate Justice and the Ethical Dimensions of Climate Change

*Topics: Climate Justice; Equity and Inequity aversion; Climate change and human rights; Distributional equity; Hedonic sorting; Energy access; Inequality of climate impacts;*

Required reading

- Dietz, S., Hepburn, C., and Stern, N. 2009. Economics, ethics and climate change. Arguments for a Better World: essays in honour of Amartya Sen (Volume 2: society, institutions and development) [Kaushik Basu and Ravi Kanbur (eds.)]. Oxford University Press, Oxford.
- Schlosberg, David, and Lisette B. Collins. "From environmental to climate justice: climate change and the discourse of environmental justice." Wiley Interdisciplinary Reviews: Climate Change 5, no. 3 (2014): 359-374.
- Arrow, Kenneth, Maureen Cropper, Christian Gollier, Ben Groom, Geoffrey Heal, Richard Newell, William Nordhaus et al. "Determining benefits and costs for future generations." Science 341, no. 6144 (2013): 349-350.
- Hsiang, Solomon, Paulina Oliva, and Reed Walker. "The distribution of environmental damages." Review of Environmental Economics and Policy 13, no. 1 (2019): 83-103.

More information

- Stern, Nicholas. (2006). “Chapter 2 – Economics, Ethics, and Climate Change.” Stern Review - Report on the Economics of Climate Change

## Policies and Student Resources

Many of the following policies are explicitly described in the University's student manual. The University also offers a comprehensive set of student support services (described here), including student health services.

### Mental Health Resources

If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, counseling services (including remote counseling) are available. Student Counseling Service (SCS) urges you to attend to your mental wellbeing and to reach out to them for support during these challenging times. All SCS services are covered by the Student Life Fee, and there is no additional cost for students to access their services. See https://wellness.uchicago.edu/mental-health/. Students seeking new services/resources can call 773.702.9800 during business hours (Monday–Friday 8:30 a.m.–5 p.m.) and ask to speak with a clinician. Students needing urgent mental health care can speak with clinicians over the phone 24/7 by calling the SCS at 773.702.3625.

### Academic Integrity

All University of Chicago students are expected to uphold the highest standards of academic Integrity and honesty. Among other things, this means that students shall not represent another's work as their own, use un-allowed materials during exams, or otherwise gain unfair academic advantage.

- The University's policies regarding academic integrity and dishonesty are described here. It is worth explicitly stating the University's approach: "It is contrary to justice, academic integrity, and to the spirit of intellectual inquiry to submit another's statements or ideas as one's own work. To do so is plagiarism or cheating, offenses punishable under the University's disciplinary system. Because these offenses undercut the distinctive moral and intellectual character of the University, we take them very seriously."
- The Harris School's policies are available in the *Harris Student Handbook* Canvas site.
    - The *Academic Honesty and Plagiarism* section expresses the main principles.
    - Detailed guidelines for more specialized student work (e.g., problem sets including computer code) are offered in the section titled *Harris Integrity Policy for Problem Sets Involving Code.*
    - Harris's specific procedures for handling suspected violations of these policies are available in the section *Harris Procedures for Allegations of Plagiarism, Cheating, and Academic Dishonesty* and are also re-produced as an Appendix to this document.
    - All students suspected of academic dishonesty will be reported to the Harris Dean of Students for investigation and adjudication. The disciplinary process can result in sanctions up to and including suspension or expulsion from the University.
    - In addition to disciplinary sanctions, I will impose a grade penalty, to be decided based on the severity of the transgression. The student may receive a failing grade for the course regardless of their performance on elements of the course.

### Disability Accommodations

- The University's policies regarding students with disabilities are available here. Students who have disability accommodations awarded by the University Student Disability

Services Office should inform the Harris Dean of Students office by the end of the first week of class. The Harris Dean of Students Office will work with the student and instructor to coordinate the students' accommodations implementation.

- Harris students are not required to submit their accommodations letter to the instructor. Students from other divisions in the University must submit their accommodations letter to either the instructor or the Harris Dean of Students Office.
- Students who do not yet have formal accommodations in place but who feel they need accommodations on a temporary or ongoing basis should contact the Harris Dean of Students Office or Student Disability Services.

**Diversity and Inclusion**

The Harris School welcomes, values, and respects students, faculty, and staff from a wide range of backgrounds and experiences, and we believe that rigorous inquiry and effective public policy problem-solving requires the expression and understanding of diverse viewpoints, experiences, and traditions. The University and the Harris School have developed distinct but overlapping principles and guidelines to ensure that we remain a place where difficult issues are discussed with kindness and respect for all.

- The University's policies are available here. Specifically, the University identifies the freedom of expression as being "vital to our shared goal of the pursuit of knowledge, as is the right of all members of the community to explore new ideas and learn from one another. To preserve an environment of spirited and open debate, we should all have the opportunity to contribute to intellectual exchanges and participate fully in the life of the University."
- The Harris School's commitments to lively, principled, and respectful engagement are available here: "Consistent with the University of Chicago's commitment to open discourse and free expression, Harris encourages members of the leadership, faculty, student body, and administrative staff to respect and engage with others of differing backgrounds or perspectives, even when the ideas or insights shared may be viewed as unpopular or controversial." We foster thought-provoking discourse by encouraging community members not only to speak freely about all issues but also to listen carefully and respectfully to the views of others.

**A Note on Sexual Misconduct**

- University of Chicago is committed to fostering a safe, productive learning environment. Title IX and our school policy prohibits discrimination on the basis of sex. Sexual misconduct — including harassment, domestic and dating violence, sexual assault, and stalking — is also prohibited at our school.
- Anyone experiencing sexual misconduct is encouraged to talk to someone about what happened, so they can get the support they need and our school can respond appropriately.
- If you wish to speak confidentially about an incident of sexual misconduct, want more information about filing a report, or have questions about school policies and procedures, please contact our Title IX Coordinator, which can be found on University of Chicago's website.

- University of Chicago is legally obligated to investigate reports of sexual misconduct after a formal complaint is filed or signed by the Title IX Coordinator, but a request for confidentiality will be respected to the extent possible.