

**Syllabus Winter 2020: PPHA 39930 (PRELIMINARY)**  
**International Climate Policy**  
**Wednesday: 2.00pm-4.50pm**

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*Course Materials:*

- (1) Course slides posted weekly on Canvas
- (2) Readings for each week to be provided on this syllabus (No more than 100 pages per week)

*Course Objective:*

Anthropogenic climate change is one of the most difficult challenges faced by modern society. A revolution in socioeconomic and environmental data, along with new and old insights from economics, can inform how we face this global challenge. During the course, our focus will be on the impacts of climate change upon society, and the necessity of solutions that deal with the global scope, local scales, and often unequal and unjust nature of the impacts.

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 latter part of the course will hone students' ability in applying these insights and tools through policy debates and presentations. The goal is to help students become informed and critically-minded practitioners of evidence-based, climate-informed policy making.

This syllabus is preliminary. Topics covered each week are listed, but final choices of reading have yet to be decided. Midterm and final assessment have yet to be decided. Climate change, and the environmental crises facing the planet, are the subject of current and ongoing debate and discussion. Each week 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. For better or worse, I am somewhat involved in a few ongoing discussion in climate policy, and will attempt to draw from these experiences and the writing and discussion of my collaborators.

### Class Preparation:

Class preparation will primarily involve reading the required materials before each class. Each week will require approximately 100 pages of reading. Readings marked with ‘\*\*’ are required readings. Please come to class having read all required readings and as many of the other readings as you can. Any of these may be the subject of classroom discussions, and each of you is expected to join in classroom discussions and debates.

In addition, each week you will be required to submit a “data visualization” that you find during your exploration of contemporary facts about climate change and the environment. More details will be given on this requirement during class.

### Software:

This course will require you to follow lectures and complete assignments using any statistical software, with a particular emphasis on STATA or R. Stata is available on the computers in the Harris School Computer Lab and on the student servers. Students wishing to purchase Stata may do so through the University at a substantial discount. Stata SE is \$235 for a one-year license; \$395 for a perpetual license. R was, is, and always will be free.

### Course Grading and Evaluation

Exact evaluation criteria TBA. The course will involve a mixture of data assignments, written assignments, presentations, and data visualization submissions.

- **Data visualization**

Each week before 9am on the day of class, you will be required to upload a “data visualization” through Canvas. This should be an image / figure from an article, report, newspaper, etc., that visualizes data related to an issue relevant to climate change, climate impacts, or climate policy, broadly speaking. Images (plus a caption if needed) should be self-contained, and the source of the data should be clear. They can be interactive visualizations.

5% of your final grade will be awarded if you submit on more than 7 of the 9 weeks available, 2% if you submit more than 5 out of 9. I will choose 3 of the submissions each week to discuss in class.

- **Assignments**

There will be approximately five assignments through the quarter. These will involve questions that ask you to expand on the theoretical topics we have covered in class, perform some data analysis, and engage with the readings / papers or other articles. All data analysis is expected to be replicable, with you submitting code in addition to your answers.

- **Midterm (TBD)**

- **Final (TBD)**

### 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.

### Communication

Communication from instructors to students will happen through posting of materials on Canvas and class email sent through Canvas. Emailing me directly is likely to be the least efficient way to communicate about the class, with office hours or messages on Canvas generally preferable. *Questions regarding scheduling, class materials, or assignments* should be directed to your TA.

### Stata and R Support Bar:

The Harris School has dedicated additional resources for teaching programming in R and Stata through the Stata and R support bars.

### Tutoring

If you would like to employ a tutor for additional instruction, please contact your academic advisor or the Assistant Director for Student Affairs, Jen Lombardo (lombardo@uchicago.edu).

### Detailed syllabus and readings

NOTE: Required readings are indicated with a ‘\*\*’ before their entry. Other readings are optional, and will either be referred to in class or provide extra background / detail on a topic.

## **Part I: The Science and Economics of Climate Change (weeks 1-3)**

- 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;*

- 2) The Nature of the Climate Problem

*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;*

## **Part II: Climate Impacts and Climate Justice (weeks 3-5)**

### **3) The Damage Function**

*Topics: GCMs; Biophysical impacts methods; Socioeconomic impacts methods; Integrated Assessment Models (IAMs); Biophysical impacts; Economic impacts; Adaptation; Climate versus weather; Hedonic regression; Panel regressions; dose-response;*

### **4) Climate Impacts**

*Topics: 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;*

### **5) Climate Justice**

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

## **Part III: Climate Policy Instruments in Theory and Practice (weeks 6-8)**

### **6) An Introduction to Climate Policy Instruments**

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

### **7) National Climate Policies in Practice**

*Topics: Power; Renewable energy; Fracking; Transportation; Fuel and Energy efficiency; Marginal abatement curves; Energy access; Electrification; Energy policy in low income settings; “Energy ladder”*

### **8) International Climate Policies in Practice**

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

## **Part IV: The Future, and Wrapping Up (weeks 9-10)**

### **9) Innovation / Social Cost of Carbon**

*Topics: Research, development, and deployment; Renewable energy technology; Social Cost of Carbon in practice; Carbon capture and storage;*

### **10) Presentations / Debates**

## Ethical Academic Conduct

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. 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, a student will receive a grade of 0 on the assignment or exam in question (subject to the discretion of the instructor). The Harris policy and procedures related to academic integrity can be found at <https://harris.uchicago.edu/gateways/current-students/policies>. The University of Chicago Policy on Academic Honesty & Plagiarism can be found at <https://studentmanual.uchicago.edu/academic-policies/academic-honesty-plagiarism/>

### **Harris Integrity Policy for Problem Sets Involving Code**

*Note: This policy was developed by a committee of Harris faculty and is meant as a guideline. Individual instructors may make modifications to this policy in the context of his or her own class. Please see the course syllabus for rules relating to a particular course.*

1. Academic dishonesty will not be tolerated. If you commit plagiarism, you may receive an F and be referred to the Area Disciplinary Committee.
2. All work must be your own. Do **NOT**
  - show other students your code
  - ask for another student's code
  - use online solutions to textbook questions
  - copy large portions of code from online repositories (e.g. replication code)
3. Every submission begins with "*this submission is my work alone and complies with the 57300 integrity policy. Add your initials to indicate your agreement: \*\* \_\_\_\_ \*\**"
4. So how can I collaborate?
  - a. In-person collaboration
    - I. clarify ambiguities in problem set questions
    - II. discuss conceptual aspects of problem sets (e.g. at the whiteboard)
    - III. show output on screen (e.g. a graph or table)
    - IV. show helpful documentation files
  - b. Electronic collaboration
    - I. Piazza message board
      - ask questions
      - share error messages (but not code)
    - II. Code from an online forum or resource (other than documentation files)
      - cite all code you use, even a one-line snippet
5. How do these rules change for problem sets working in groups?
  - a. You and your group members will submit a single problem set.
  - b. If you work collaboratively with other students, but turn in your own problem set
    - You can talk to your group members as needed and look at other members work to facilitate that discussion
    - Your problem set should be solely your authorship (written up by yourself, in your own language, including your own code.)
    - Your code should have a comment at the top listing the members of your group.

- any part of your code that was substantially altered because of your group discussion should cite others' contributions with names and descriptions in a comment at the place where it is applicable.

6. Unsure about some aspect of this policy? Please ask your instructor.

Please [see example](#)

source: This policy draws heavily on the CS 12100 academic honesty [policy](#) and CMSCC 23300 [policy](#)

**Full Harris Academic Integrity Procedures**  
from online student Handbook accessible at <https://harris.uchicago.edu/gateways/current-students/policies>

### **Harris Procedures for Allegations of Plagiarism, Cheating, and Academic Dishonesty**

#### *First Violation*

If a student is accused by an instructor or teaching assistant of plagiarism, cheating, or any other form of academic dishonesty, the student will be summoned to meet with the Dean of Students and the instructor. In the meeting, the student and instructor both present information about the situation. If it is determined by the instructor and the Dean of Students that the student has, in fact, plagiarized or cheated, the following sanctions will be imposed for the first violation:

- The student will generally receive a grade of 0 on the assignment or exam in question. Please note that grading decisions are fully at the discretion of the instructor, who may decide to impose harsher grade penalties.
- The student may be asked to re-do the assignment or retake the exam (without credit) to ensure that the student has learned how to properly cite sources or demonstrate that he or she has command of material covered.
- A formal letter of finding is sent to the student stating that the student has been found in violation of the code of academic honesty and what the sanctions were. The letter, along with any evidence presented, is archived in Harris Student Affairs records until the student graduates if the student has no other violations.
- Students found in violation of the academic honesty policy are not permitted to withdraw from the course to avoid grade penalties from the instructor.
- In cases where plagiarism or academic dishonesty is egregious, the case may be referred to the Area Disciplinary Committee even on a first offense. The Dean makes all decisions about which cases will go before the Area Disciplinary Committee.

#### *Second Violation*

If a student who has already been found in violation academic dishonesty is again accused of academic dishonesty, the case will be sent to the Harris Area Disciplinary Committee. Details about the Area Disciplinary Committee procedures can be found in the [University Student Manual](#). Information about the first violation, including the formal letter of finding any evidence, will be presented to the Area Disciplinary Committee, along with evidence of the current allegation. If the student is found in violation of academic honesty a second time, the Area Disciplinary Committee can assign sanctions including transcript notes, disciplinary probation, suspension or expulsion from the University.

#### **Academic Dishonesty Appeals**

If a student has been found in violation of academic honesty and does not believe that either the finding or the sanction is fair or correct, the student has the right to appeal the finding by

requesting a hearing from the Area Disciplinary Committee. More information about the Area Disciplinary Committee is available [here](#).

**University of Chicago Policy on Academic Honesty & Plagiarism**

<https://studentmanual.uchicago.edu/academic-policies/academic-honesty-plagiarism/>