



THE UNIVERSITY OF CHICAGO
THE HARRIS SCHOOL OF PUBLIC POLICY

PPHA 44340:
ENERGY AND ENVIRONMENTAL ECONOMICS III

Spring 2024: Monday 1:30 PM

Instructor: Professor Koichiro Ito
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Office hours: After class and by appointment

1. Course Description: Optimal environmental regulation requires an analysis of the trade-offs between market and regulatory imperfections. Market allocations are inefficient in the presence of imperfections such as externalities, market power, and informational asymmetries. On the other hand, government intervention to mitigate these imperfections is not costless, and can even make market performance worse.

This course is the third course in the Ph.D. environmental and energy economics sequence at the University of Chicago. We focus on recent empirical analysis of the costs and benefits of environmental and energy policies, including an introduction to the relevant econometric methodologies such as randomized controlled trials, regression discontinuity design, bunching analysis, and structural estimation. Topics will include: energy demand and the energy efficiency gap, fuel economy and appliance efficiency standards, non-linear and real-time electricity pricing, wholesale electricity markets, renewable electricity policies, natural gas markets, retail gasoline markets, and technology innovations.

2. Prerequisites: 1) PhD-level coursework on microeconomics, 2) PhD-level coursework on econometrics and 3) Environmental and Energy Economics I & II (PPHA443201 & PPHA44330). If you have not taken these courses, please obtain consent of the instructor to enroll.

3. Readings: Course readings are listed below. There is no textbook.

4. Audits: I welcome students who choose to audit the course. However, my class is a no-free-rider zone, so auditing students will be required to participate in class presentations and discussions as if they were taking the course for credit. Specifically, auditing students are

required to read assigned papers (* and ** in the reading list) and participate in class discussions. Auditors may also be asked to present a paper in class. Auditors are exempt from turning in referee reports, problem sets, research summaries, and from taking the exam.

5. Seminars: All students interested in environmental and energy economics should attend the EPIC lunch seminar. In addition, two web sites that will be of interest to students in environmental and energy economics are the EEE NBER Working Paper series (<http://www.nber.org/papersbyprog/EEE.html>) and the Energy Economics Exchange blog from UC Berkeley (<http://energyathaas.wordpress.com/>). For both of these sites, you can sign up for notifications of new papers and posts.

6. Course design

In most weeks, we will have 2 assigned papers. For each paper, students need to submit quiz answers via Google form: <https://forms.gle/Xojs3Six6dJ5sRC5A>. Submitting the Google form is an incentive mechanism for everyone to read the paper before class and engage in deeper discussion and questions about each paper.

Here is the current plan:

Date	Time	Item
Sunday	Noon	Students submit quiz answers via Google form
Monday	1:30 PM - 4:20 PM	In person class meeting: 1) Prof. Ito presents assigned reading #1 and ask students questions about the paper, and 2) a student presents assigned reading #2 and leads discussion.

7. Required readings and student presentation: Every week, a student presents assigned paper #2. This will give you an opportunity to practice your presentation skill, which is important for your academic career (for both research and teaching).

The student presents the paper for 30 minutes and leads the class discussion for 30 minutes. The presentation slides in PDF must be uploaded in Canvas **by noon on the day before** the presentation day. The presentation should include the following items:

- A) What is the research question?
- B) Why is it interesting/important?
- C) Brief data description
- D) Estimation method (and a brief description of your model, if any, but not required)
- E) Results

- F) Contributions of the paper relative to previous studies (compare the paper to a few of the most key/relevant studies in the literature and explain why the paper provides novel contributions).
- G) Your questions and critiques for the paper to lead the class discussion

8. Research Paper (only for students who take the course for a credit): The second goal of this course is to help students to start conducting original research in this field. Remember that your goal in the PhD program is to produce original research. Understanding someone else's research is useful but not a goal for your grad school. With this motivation, I ask you to work on the following items:

- 1) Two Research Ideas:** Email a summary of two research ideas in PDF to me. The summary should include texts (max 3 pages of texts) along with a reference list, tables, and figures. It should contain the following six sections:
 - A) What is the research question?
 - B) Why is it interesting/important?
 - C) Data description
 - D) Estimation method (and a brief description of your model, if any, but not required)
 - E) Preliminary results
 - F) Contributions of your paper relative to previous studies (compare your paper to a few of the most key/relevant studies in the literature and explain why your study provides novel contributions).
- 2) Summary of Preliminary Findings:** Email a summary of the preliminary findings of your project in PDF to me. The summary should include texts (max 3 pages) along with a reference list, tables, and figures. It should contain all of the items A to F listed above.
- 3) Final Presentation Slides (deadline: Noon on the day before the presentation day):** Email me your slides in PDF. Your presentation will be 10-20 minutes (depending on class size for this year) with no interruptions followed by 5-minute Q&A. Your presentation needs to cover all of the items A to F listed above.
- 4) Final Paper:** Email me your final paper in PDF. This should include texts (max 4 pages) along with a reference list, tables, and figures. Your paper needs to cover all of the items A to F listed above.

9. Grading: The course grades will break out as follows:

Presentation of assigned papers and active class discussion: 25%

Weekly assignment submissions: 25%

Research papers (two ideas, preliminary results, final proposal & presentation): 50%

10. A special note for non-PhD students:

This is a PhD level course, and I will grade all students in this course in the same way, without distinguishing PhD and non-PhD students. Therefore, this course is not an easy course to obtain high letter grades. Please consider this point seriously before taking this course for a credit.

11. Policy for Late Assignments: Please meet the deadline. Each assignment that missed its deadline will create a 5-point deduction per day from your final course grade, with no exception.

12. Temporary accommodations for Covid symptoms

If you cannot attend in-person class because of COVID symptoms and want to have a recorded in-person lecture, please email me. I will arrange recording and share a link with you. Unless there is a request due to COVID symptoms, I will not record in-person lectures, although the pre-recorded lecture videos are always available in Box.