ECON/AREC 741  Graduate Environmental Economics

Do unto those downstream as you would have those upstream do unto you.

– Wendell Berry

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Office Hours: TBD (or by appointment)

Course Description: This is a second-year graduate course in environmental economics, intended for PhD students. We will develop a range of theoretical and empirical tools and consider their application to the regulation of environmental problems. Topics will include the origins of market failure, assorted topics in regulation theory, dynamic modeling of stock pollution problems, causal inference, and a variety of topics that arise when studying global environmental problems such as climate change.

Expectations and Requirements: Because this is a second-year graduate course, my main objectives—beyond a simple survey of topics—are to get you to critically read as many papers in the peer-reviewed environmental economics literature as possible, and to give you opportunities to explore potential avenues for your own research.

To encourage you to do this, each student will be required to lead two classroom discussions on a paper from the syllabus. This will be worth 30 percent of your grade. In addition, you will be required to write two referee reports on papers from the syllabus. The referee reports will be worth 20 percent of your grade. You will also be required to submit a final paper worth 40 percent of your grade. The final paper will explore a research direction of interest to you, and part of your grade will include the submission of an interim paper 1 month before the end of the semester. The final 10 percent of your grade will be assigned on the basis of your contributions to in-class discussions.

Plagiarism and cheating are strictly forbidden.

In-class presentations:
Your goal is to summarize the research question, methods and findings of a paper from the syllabus. You will then setup a classroom discussion about the paper. You may draw on a discussion or presentation of related papers from the literature if appropriate. The discussion should take up most of the class period. I will post a grading rubric for these presentations in Canvas.

Referee Reports: Supporting the peer review process by writing referee reports is an important responsibility of academic economists. It is also a good opportunity to hone your critical reading skills, and to develop your understanding of what a good research paper looks like.

The report should be about three (single-spaced) pages. The first page or so should summarize what the paper does. Your goal is not to simply restate what the authors claim to have done in the abstract or introduction. Rather, provide your professional opinion, having read the entire paper, regarding what you think the authors actually accomplish. If this is different from what the authors claim to have done, it is important that you indicate this in your report.
The remaining portion of the report should critically examine the paper. In doing so, keep an eye on the following questions. (1) Does the paper make an important contribution to the literature? At this point you may not be very familiar with the relevant literature, but you should at least provide some idea of how important the contribution is likely to be. (2) Are there any major flaws in the manuscript? This could include a flaw in method: perhaps a mathematical error if it is a theoretical paper, or an incorrect use of a particular econometric tool if the paper is applied. It could also arise due to flaws in the logical development of the paper, or due to inaccurate statements regarding what the author claims to have accomplished. Finally, Are there any minor flaws in the writeup? This could include grammatical mistakes or areas where the writeup is unclear. For more information about writing a referee report, see the resources on Canvas.


Once you have found a general topic of interest, you need to narrow down to a specific research question. In presenting your question, use the following template. (1) **Situation:** What background information does one need to understand in order to have a clear idea where your research question is coming from? This includes information about prior work or prior efforts to address the question that a knowledgeable reader would already be familiar with. (2) **Complication:** What is the wrinkle? This is your entry into the literature. It prompts the problem that you will try to solve. (3) **Key question(s):** This is the question or questions that your proposed research would attempt to solve. (4) **Answer:** This is your current working hypothesis about what a possible answer to the indicated question might look like.

In addition to setting up the research question using the template above, you also need to conduct a literature review. The review should cover at least eight to ten relevant papers. Building on your understanding of these papers, you need to provide a careful discussion that explains to the reader what has been done before in the relevant peer reviewed literature related to your question of interest.

Next, you need to take a first step into researching your topic. If the problem is empirical, you need to collect the data and run your initial regressions. If it is theoretical, then you need to setup a preliminary model and work towards some initial analytical results.

Finally, you need to talk about what you have accomplished and where you need to go next.

**Readings**

*Required textbook*


*Other textbooks*

§1: Efficiency and Market Failure

- Perman Chapter 4
- Laffont Chapter 1

§2: Pollution Control Targets

- Perman Chapter 5
- B&O Chapter 4

§3: Pollution Control Instruments

- Perman Chapter 6
- Karp Chapter 2

§4: Pollution Policy with Imperfect Information

- Perman Chapter 7
- B&O Chapter 5

§5: Valuation

- Perman Chapter 12


§6: Stock Pollutants

- Perman Chapter 16
- Heal “Valuing the future,” chapter 4

§7: Optimal Carbon Taxes


§8: Discounting

- Perman Chapter 11
- Gollier Book “Pricing the Planets Future”

§9: Fossil Fuel Extraction

• Daron Acemoglu, Philippe Aghion, and David Hemous. Climate change, directed innovation, and energy transition: Should we escape from coal through gas. Technical report, mimeo, 2014


§10: Supply-Side Environmental Policy


§11: International Environmental Agreements

• Perman Chapter 9


§12: Identification and Quasi-Experiments

• J. Angrist and J.S. Pischke. The credibility revolution in empirical economics: How better research design is taking the con out of econometrics. Journal of Economic Perspectives, 2010


