Economics 266

Fall 2022

Instructors

Judson Boomhower jboomhower@ucsd.edu

Mark Jacobsen m3jacobsen@ucsd.edu

Office hours: By appointment

Class Meetings

Mondays and Wednesdays 9:30 – 10:50 AM Economics 200

Objectives

This is one in a series of courses that prepare graduate students to conduct original research in environmental and energy economics. These electives may be taken in any order.

The main learning objectives are for students to:

- Learn major economic concepts and models used in this field.
- Learn to design and evaluate research in environmental economics.
- Develop original research ideas to explore in their dissertation research.

Requirements

- Attend all class sessions. Notify instructor in advance of unavoidable absences.
- Read required papers and participate in class discussions (20% of final grade).
- One in-class presentation of a paper from the reading list. You should choose one of the papers indicated with a † symbol. We will coordinate assignments to avoid duplication. In 15 minutes, explain (i) the research question and novelty of the paper, (ii) the empirical strategy, and (iii) the strengths and weaknesses of the paper (10% of final grade).
- One problem set (15% of final grade).
- Referee report assignment (20% of final grade).
- Research proposal sketch (35% of final grade).

Class Participation

You are responsible for reading the 1-2 assigned papers for each lecture in advance (we will confirm the required readings for each lecture as the course proceeds).

As a commitment device intended to aid learning, we'll randomly call on 2-3 students each class to answer questions about the assigned reading for that day. If you are having an emergency or have some other issue in a given week, you may contact us before class to let us know that we should remove you from the random number pool for that day. Please let us know if this policy creates issues for you.

Research Development Assignment

One of the most important challenges faced by advanced PhD students is transitioning from coursework to original research. This assignment asks you to conceive an original research question in environmental and energy economics and take the first steps towards developing that question into a research project. The required product is a roughly 3,000- to 5,000-word "research sketch" that explains the question and how you would answer it. You are not expected to carry out the actual project, but you should be as specific as possible about how you would do so. For example, for empirical projects, what is the empirical model and how will you measure the coefficients of interest?

Research sketches should emphasize:

- Novelty. What distinguishes this paper from all previous studies on this topic?
- Interest. Why should economists find your study interesting?
- Importance. Why should non-economists (e.g., policymakers) care about your findings?
- Design. How will this study answer the question? Why is this the best way to approach the problem? What are the most important challenges in measurement or modeling, and why are you confident that your approach can overcome them?

In some cases, these sketches will hopefully become the seeds of successful dissertation chapters. In other cases, these ideas may turn out to be "dead ends" because the data prove to be unavailable or uncollectible, key identification challenges cannot be overcome, or some other reason. There is a non-trivial component of luck at this stage of the research process. Either way, students are urged to approach this assignment as an opportunity to practice a skill that will be central to their lives as future researchers. Because the goal is to practice the skill of developing and motivating new ideas, you should not use an idea that you have previously developed as a course assignment for another class.

Written research sketches are due on the final day of class (Wednesday November 30). The final class meeting will be devoted to student presentations of these research ideas.

Schedule of Topics and Starred (Required) Readings

Monday, Sep 26 Course overview; Externalities (Boomhower/Jacobsen)

Wednesday, Sep 28 Non-market valuation and hedonic prices (Boomhower)

* Greenstone, Michael. 2017. "The continuing impact of Sherwin Rosen's 'Hedonic prices and implicit markets: product differentiation in pure competition'." *Journal of Political Economy* 125 (6): 1891–1902.

* Rosen, Sherwin. 1974. "Hedonic prices and implicit markets: product differentiation in pure competition." *Journal of Political Economy* 82 (1): 34–55.

Monday, Oct 3 Non-market valuation and hedonic prices (Boomhower)

* Chay, Kenneth Y, and Michael Greenstone. 2005. "Does air quality matter? Evidence from the housing market." *Journal of Political Economy* 113 (2): 376–424.

Wednesday, Oct 5 Cap and trade (Jacobsen)

* Weitzman, Martin L. 1974. "Prices vs. quantities." *The Review of Economic Studies* 41 (4): 477–491.

Monday, Oct 10 Trade, leakage, and intensity standards (Jacobsen)

* Copeland, Brian R, and M Scott Taylor. 2004. "Trade, growth, and the environment." *Journal of Economic literature* 42 (1): 7–71.

* Holland, Stephen P. 2012. "Emissions taxes versus intensity standards: Second-best environmental policies with incomplete regulation." *Journal of Environmental Economics and management* 63 (3): 375–387.

Wednesday, Oct 12 Second-best policy in the presence of pre-existing tax systems (Jacobsen)

* Bento, Antonio M, Mark R Jacobsen, and Antung A Liu. 2018. "Environmental policy in the presence of an informal sector." *Journal of Environmental Economics and Management* 90:61–77.

* Bovenberg, A Lans, Lawrence H Goulder, and Mark R Jacobsen. 2008. "Costs of alternative environmental policy instruments in the presence of industry compensation requirements." *Journal of Public Economics* 92 (5-6): 1236–1253.

Monday, Oct 17 Climate change I: Impacts (Boomhower)

* Dell, Melissa, Benjamin F Jones, and Benjamin A Olken. 2014. "What do we learn from the weather? The new climate-economy literature." *Journal of Economic Literature* 52 (3): 740–98.

* Schlenker, Wolfram, and Michael J Roberts. 2009. "Nonlinear temperature effects indicate severe damages to US crop yields under climate change." *Proceedings of the National Academy of sciences* 106 (37): 15594–15598.

Wednesday, Oct 19 Climate change II: Optimal Carbon Taxes (Jacobsen)

* Allen, Myles R, Mustafa Babiker, Yang Chen, Heleen de Coninck, Sarah Connors, Renée van Diemen, Opha Pauline Dube, Kristie L Ebi, Francois Engelbrecht, Marion Ferrat, et al. 2018. "Summary for policymakers." In *Global Warming of 1.5: An IPCC Special Report*. IPCC. https://www.ipcc.ch/sr15/chapter/spm/.

* Nordhaus, William. 2019. "Climate change: The ultimate challenge for economics." *American Economic Review* 109 (6): 1991–2014.

* ———. 2021. "Dynamic climate clubs: On the effectiveness of incentives in global climate agreements." *Proceedings of the National Academy of Sciences* 118 (45): e2109988118.

Monday, Oct 24 Climate change III: Adaptation (Boomhower)

* Burke, Marshall, and Kyle Emerick. 2016. "Adaptation to climate change: Evidence from US agriculture." *American Economic Journal: Economic Policy* 8 (3): 106–40.

* Carleton, Tamma, Amir Jina, Michael Delgado, Michael Greenstone, Trevor Houser, Solomon Hsiang, Andrew Hultgren, et al. 2022. "Valuing the Global Mortality Consequences of Climate Change Accounting for Adaptation Costs and Benefits." *The Quarterly Journal of Economics* 137, no. 4 (April): 2037–2105.

Wednesday, Oct 26 Utility Regulation (Boomhower)

* Lee, Kenneth, Edward Miguel, and Catherine Wolfram. 2020. "Experimental evidence on the economics of rural electrification." *Journal of Political Economy* 128 (4): 1523–1565.

Monday, Oct 31 Utility Regulation, Transportation (Boomhower/Jacobsen)

* Cicala, Steve. 2015. "When does regulation distort costs? lessons from fuel procurement in us electricity generation." *American Economic Review* 105 (1): 411–44.

Wednesday, Nov 2 Transportation (Jacobsen)

* Ito, Koichiro, and James M Sallee. 2018. "The economics of attribute-based regulation: Theory and evidence from fuel economy standards." *Review of Economics and Statistics* 100 (2): 319–336.

Monday, Nov 7 Regulation, energy efficiency, and behavioral considerations (Jacobsen)

* Allcott, Hunt, and Michael Greenstone. 2012. "Is there an energy efficiency gap?" *Journal of Economic perspectives* 26 (1): 3–28.

Wednesday, Nov 9 Distributional effects of policy and the incidence of pollution (Boomhower)

* Currie, Janet, John Voorheis, and Reed Walker. 2020. *What Caused Racial Disparities in Particulate Exposure to Fall? New Evidence from the Clean Air Act and Satellite-Based Measures of Air Quality.* Working Paper, Working Paper Series 26659. National Bureau of Economic Research, January.

Monday, Nov 14 Distributional effects of policy and the incidence of pollution (Jacobsen)

* Sallee, James M. 2019. *Pigou Creates Losers: On the Implausibility of Achieving Pareto Improvements from Efficiency-Enhancing Policies.* NBER Working Paper 25831. May.

Wednesday, Nov 16 Resources & fisheries (Boomhower)

* Clark, Colin W. 1973. "The Economics of Overexploitation: Severe depletion of renewable resources may result from high discount rates used by private exploiters." *Science* 181 (4100): 630–634.

Monday, Nov 21 No class

Wednesday, Nov 23 No class

Monday, Nov 28 Resources & fisheries (Boomhower)

* Heal, Geoffrey, and Wolfram Schlenker. 2019. *Coase, Hotelling, and Pigou: The Incidence of a Carbon Tax and CO2 Emissions.* NBER Working Paper 26086. July.

* McDermott, Grant R, Kyle C Meng, Gavin G McDonald, and Christopher J Costello. 2019. "The blue paradox: Preemptive overfishing in marine reserves." *Proceedings of the National Academy of Sciences* 116 (12): 5319–5325.

Wednesday, Nov 30 Student presentations of research sketches