

PubPol 475/564: Government Regulation of Industry and the Environment

Mondays and Wednesdays 10 – 11:20 a.m., 1230 Weill Hall

Winter 2023 – Ford School of Public Policy – University of Michigan

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Office hours: Wednesdays and Fridays 3 – 4 p.m., 4215 Weill Hall

This course focuses on the economics of energy and environmental regulations in the United States. It is designed to give students practical experience in making connections between intermediate microeconomic concepts and real-world regulatory policy issues. The emphasis will be on critical thinking to answer questions like the following:

- How do energy markets work?
- What are the effects of energy markets on the environment?
- When should the government intervene to regulate a market?
- What is the appropriate form of government intervention in a market?
- What is the role of energy policy in mitigating environmental damage?

The course material will be divided approximately equally between energy issues and environmental issues. Students who are primarily interested in energy markets will gain an understanding of the impact of environmental externalities and how these externalities are regulated. Students who are primarily focused on environmental issues will learn how energy markets work, and how these markets can be incentivized to reduce environmental damage.

Throughout the semester, we will review some of the key concepts in microeconomics that are needed for understanding energy and environmental policy issues. My assumption is that you have already taken PubPol 330 or 555 or their equivalent.

We will apply these concepts to current, real-world events. We won't have time for every issue! But by the end of the semester, you will have the necessary tools and concepts to analyze a broad range of issues.

Readings and course website

We will be using *Markets and the Environment*, the second edition, by Keohane and Olmstead. An e-book is available through the library, and paper copies are not very expensive. This will be supplemented with other required readings (on Canvas) designed to help us explore current issues and put our theory into a practical context.

Course-related information, class handouts, and readings will all be available on the course Canvas site. Please let me know if you have any difficulties accessing the site. Electricity Strategy Game updates and other announcements will be distributed via email.

Grading

Grading will be as follows:

- Class participation: 10%
- ESG memo: 30%
- Reading reflections: 30%
- Essay (see breakdown below): 30%
 - Topic: 5%
 - First draft: 10%
 - Second draft: 15%

Reading reflections

At the beginning of each class period, a short reading reflection is due, quickly summarizing and responding critically to the reading assignment for the day. Detailed instructions will be provided separately.

Simulation game

An important part of this course is a team-based market simulation game called the ESG (Electricity Strategy Game). Grading for the game will be based on a team memo and your team's performance in the game (we'll talk about what that means in class).

Essay

For this essay, you will be asked to write a short paper on a climate-related policy. Further details will be provided early in the semester.

How to contact me

I encourage you to come to office hours. They give us a chance to discuss things in more depth than is possible via email. I am also available by appointment outside of scheduled office hours.

Attendance and participation

Lectures, class discussions, and readings are complements, not substitutes. I will assume that you have read the material before class. Also I will cover things in lecture that are not in the readings. I will drop your two lowest participation scores.

Academic expectations

I take academic dishonesty and plagiarism very seriously, and violations will result in disciplinary action. Resources on writing are available (e.g., <https://guides.lib.umich.edu/c.php?g=1039501&p=7538393> and https://apps.lib.umich.edu/sites/default/files/services/instruction/types_of_plagiarism_accessible.pdf).

Modality

Classes will be held in-person in Weill Hall unless public health measures put in place by the Ford School mandate otherwise. My assumption is that you will attend in-person classes unless you communicate otherwise to me and to Student Services. I expect some of you will need to self-isolate at points in the semester (see the Public Health Protection Policy below). I will be flexible in response to these concerns, so please communicate with me so that I can help you succeed in the course.

Ford School inclusivity statement

Members of the Ford School community represent a rich variety of backgrounds and perspectives. We are committed to providing an atmosphere for learning that respects diversity. While working together to build this community we ask all members to:

- share their unique experiences, values and beliefs
- be open to the views of others
- honor the uniqueness of their colleagues
- appreciate the opportunity that we have to learn from each other in this community
- value one another's opinions and communicate in a respectful manner
- keep confidential discussions that the community has of a personal (or professional) nature
- use this opportunity together to discuss ways in which we can create an inclusive environment in Ford classes and across the UM community

Ford School public health protection policy

In order to participate in any in-person aspects of this course--including meeting with other students to study or work on a team project--you must follow all the public health safety measures and policies put in place by the State of Michigan, Washtenaw County, the University of Michigan, and the Ford School. Up to date information on U-M policies can be found at <https://campusblueprint.umich.edu/>. It is expected that you will protect and enhance the health of everyone in the Ford School community by staying home and following self-isolation guidelines if you are experiencing any symptoms of COVID-19

Student mental health and wellbeing

The University of Michigan is committed to advancing the mental health and wellbeing of its students. We acknowledge that a variety of issues, both those relating to the pandemic and other issues such as strained relationships, increased anxiety, alcohol/drug problems, and depression, can directly impact students' academic performance and overall wellbeing. If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services are available.

You may access counselors and urgent services at Counseling and Psychological Services (CAPS – <https://caps.umich.edu/>) and/or University Health Service (UHS – <https://www.uhs.umich.edu/mentalhealthsvcs>). Students may also use the Crisis Text Line (text '4UMICH' to 741741) to be connected to a trained crisis volunteer. You can find additional resources both on and off campus through the University Health Service (<https://uhs.umich.edu/stressresources>) and through CAPS (<https://caps.umich.edu/article/um-mental-health-resources>).

Accommodations for students with disabilities

If you believe you need an accommodation for a disability, please reach out to U-M Services for Students with Disabilities (SSD – <https://ssd.umich.edu/>) office to help determine appropriate academic accommodations and how to communicate about your accommodations with your professors. Any information you provide will be treated as private and confidential.

Academic integrity

The Ford School academic community, like all communities, functions best when its members treat one another with honesty, fairness, respect, and trust. We hold all members of our community to high standards of scholarship and integrity. To accomplish its mission of providing an optimal educational environment and developing leaders of society, the Ford School promotes the assumption of personal responsibility and integrity and prohibits all forms of academic dishonesty, plagiarism and misconduct. Academic dishonesty may be understood as any action or attempted action that may result in creating an unfair academic advantage for oneself or an unfair academic advantage or disadvantage for any other member or members of the academic community. Plagiarism involves representing the words, ideas, or work of others as one's own in writing or presentations, and failing to give full and proper credit to the original source. Conduct, without regard to motive, that violates the academic integrity and ethical standards will result in serious consequences and disciplinary action. The Ford School's policy of academic integrity can be found in the MPP/MPA, BA, and PhD Program handbooks (e.g. https://www.dropbox.com/s/oxbgig3kw5dwjzy/FINAL_2022_Masters_Handbook.pdf). Additional information regarding academic dishonesty, plagiarism and misconduct and their consequences is available at: <http://www.rackham.umich.edu/current-students/policies/academic-policies/section11#112>

Use of technology

There is very good [evidence](#) that laptops and tablets make it harder to learn for many people. **As a result, I do not generally allow laptops, phones, or other screens in the classroom.** Do let me know if you require a laptop, for instance because of SSD accommodations.

Students should follow instructions from their instructor as to acceptable use of technology in the classroom, including laptops, in each course. All course materials (including slides, assignments, handouts, pre-recorded lectures or recordings of class) are to be considered confidential material and are not to be shared in full or part with anyone outside of the course participants. Likewise, your own personal recording (audio or video) of your classes or office hour sessions is allowed only with the express written permission of your instructor. If you wish to post course materials or photographs/videos of classmates or your instructor to third-party sites (e.g. social media), you must first have informed consent. ***Without explicit permission from the instructor and in some cases your classmates, the public distribution or posting of any photos, audio/video recordings or pre-recordings from class, discussion section or office hours, even if you have permission to record, is not allowed and could be considered academic misconduct.***

Please review additional information and policies regarding academic expectations and resources at the Ford School of Public Policy at: <https://intranet.fordschool.umich.edu/academic-expectations>

Date	Topic	Assignments and ESG
Wed Jan 4	Introduction	
Mon Jan 9	Issue example: fracking & energy markets	
Wed Jan 11	Econ review: competitive markets and efficiency	
Mon Jan 16	NO CLASS	
Wed Jan 18	Issue example: fracking & the environment	
Mon Jan 23	Econ review: public goods & externalities	
Wed Jan 25	ESG Intro	
Mon Jan 30	More public goods and externalities; Coase	
Wed Feb 1	Environmental justice	ESG Practice Rd 1 due
Mon Feb 6	Market power review, natural monopoly, and price regulation	
Wed Feb 8	Price regulation in theory and practice; Electricity markets	ESG Practice Rd 2 due
Mon Feb 13	Catch up	In-class divestiture auction
Wed Feb 15	Nuclear power	
Mon Feb 20	Climate change 1	ESG Rd 1 due
Wed Feb 22	Oil markets	
Mon Feb 27	NO CLASS	
Wed Mar 1	NO CLASS	
Mon Mar 6	Environmental regulation	Paper topic due
Wed Mar 8	Environmental regulation	ESG Rd 2 due
Mon Mar 13	Market-based emissions regulation	
Wed Mar 15	Market-based emissions regulation	
Mon Mar 20	Climate change 2	ESG Rd 3 due
Wed Mar 22	Renewables, subsidies, RPS	
Mon Mar 27	Energy efficiency	Draft of paper due
Wed Mar 29	Environmental protection in developing countries	
Mon Apr 3	Energy use in developing countries	
Wed Apr 5	Particulate matter	ESG Rd 4 due
Mon Apr 10	Water	
Wed Apr 12	ESG debrief	ESG memos due
Mon Apr 17	Catch-up	Paper due

READINGS

Wed Jan 4: Introduction

Keohane and Olmstead, Chapter 1.

Plumer, Brad. "Why Google Halted its Research into Renewable Energy." *Vox.com* 11 November 2014.

Mon Jan 9: Issue example: fracking and energy markets

Hausman, Catherine and Ryan Kellogg. 2015. "Welfare and Distributional Implications of Shale Gas." *Brookings Papers on Economic Activity*. [The pdf on Canvas tells you which sections to focus on.]

Wed Jan 11: Econ review: competitive markets and efficiency

Keohane and Olmstead, Chapters 2 and 4 (skip 3 for now).

Mon Jan 16: No class

Wed Jan 18: Issue example: fracking and the environment

Hausman, Catherine and Ryan Kellogg. 2015. "Welfare and Distributional Implications of Shale Gas." *Brookings Papers on Economic Activity*. [Only Section 6: Environmental Externalities and Regulation.]

Small, Mitchell J. et al. "Risks and Risk Governance in Unconventional Shale Gas Development." *Environmental Science and Technology*.

Mon Jan 23: Econ review: public goods, externalities, and the Tragedy of the Commons

Keohane and Olmstead, Chapter 5.

Plumer, Brad. "Space Trash is a Big Problem. These Economists Have a Solution." *Washington Post Wonkblog* 24 Oct 2013.

Optional: Mildenberger, Matto. "The Tragedy of the 'Tragedy of the Commons.'" *ScientificAmerican.com* 23 April 2019.

Optional: Ostrom, Elinor. 2009. "A General Framework for Analyzing Sustainability of Social-Ecological Systems." *Science* 325.

Wed Jan 25: ESG intro

"Instructions for the Electricity Strategy Game." [handout]

"Auctions Handout." [handout]

Mon Jan 30: More public goods and externalities; Coase

Keohane and Olmstead, pp 139-143: Coase Theorem. (125-129 of the first edition)

Borenstein, Severin. "Learning and Forgetting the Wisdom of Coase." *Energy Economics Exchange* 9 Sep 2013.

Seelye, Katharine. "Utility Buys Town It Choked, Lock, Stock and Blue Plume." *New York Times* 13 May 2002.

Wed Feb 1: Environmental justice

Omega Wilson – <https://www.youtube.com/watch?v=4G6UFbNAW-8>

Penny Newman – <https://www.youtube.com/watch?v=Dml9BnsvL2I>

Donna Christensen – <https://www.youtube.com/watch?v=llawFopHjQA>

Hausman, Catherine and Stolper, Samuel. 2021. “Inequality, Information Failures, and Air Pollution.” *Journal of Environmental Economics and Management* 110 [For Sections 2 and 3, you do not need to follow the math of the models; just get a general sense of the ideas.]

Mon Feb 6: Market power review, natural monopoly, and price regulation

Optional market power review: Saylor Foundation, Principles of Microeconomics, Chapter 10. Pp 483-522.

Required: Viscusi, Harrington and Vernon, Chapter 11. [The pdf on Canvas tells you which sections to focus on.]

Wed Feb 8: Price regulation in theory and practice; electricity markets

Viscusi, Harrington and Vernon, Chapter 12. [The pdf on Canvas tells you which sections to focus on.]

Tomich, Jeffrey. “Battles over Fixed Charges Proliferate across Midwest in Wake of Wis. Cases.” *EENews.net* 15 June 2015.

Tomich, Jeffrey. “Xcel blamed for cost overruns at Minn. nuclear plant.” *EENews.net* Feb. 2015.

Mon Feb 13: Catch up and divestiture auction

Wed Feb 15: Nuclear power

Davis, Lucas W. and Hausman, Catherine. “Power of the Atom.” *IMF Finance and Development* December 2015.

Davis, Lucas W. and Wolfram, Catherine. “Deregulation, Consolidation, and Efficiency: Evidence from US Nuclear Power.” *American Economic Journal: Applied Economics* (2012). [The pdf on Canvas tells you which sections to focus on.]

Davis, Lucas W. and Hausman, Catherine. “Market Impacts of a Nuclear Power Plant Closure.” *American Economic Journal: Applied Economics* (2016). [The pdf on Canvas tells you which sections to focus on.]

Mon Feb 20: Climate change 1

IPCC. 2021. “Climate Change 2021: The Physical Science Basis – Summary for Policymakers.” [You can skim this one.]

Plumer, Brad. “The EPA Outlines Our Choices on Global Warming: Moderate Disaster or Major Disaster.” *Vox.com* 23 June 2015.

Plumer, Brad. “Trump Put a Low Cost on Carbon Emissions. Here’s Why It Matters.” *New York Times* 23 August 2018.

Rennert, Kevin et al. 2022. “Comprehensive Evidence Implies A Higher Social Cost of CO₂.” *Nature* 610: 687-700. [You can skim this one.]

Optional: Drupp, Freeman, Groom, and Nesje. 2018. “Discounting Disentangled.” *American Economic Journal: Economic Policy* 10(4): 109-134.

Wed Feb 22: Oil markets

Baffes, John et al. "Down the Slide." *IMF Finance and Development* December 2015.

Dilbert "Fungible oil" cartoon. [Be prepared to talk about the economics behind this cartoon!]

Mon Feb 27: No class**Wed Mar 1: No class****Mon Mar 7: Environmental regulation**

Berck and Helfand, Chapter 12.

Wed Mar 9: Environmental regulation

Berck and Helfand, Chapter 12, continued [no new reading reflection is due].

Mon Mar 13: Market-based emissions regulation, part 1

Keohane and Olmstead, Chapter 8.

Porter, Eduardo. "U.S. Leaves the Markets Out in the Fight Against Carbon Emissions." *New York Times* 30 June 2015.

Wed Mar 15: Market-based emissions regulation, part 2

Metcalfe, Gilbert. 2021. "Carbon taxes in theory and practice." *Annual Review of Resource Economics*.

Mon Mar 20: Climate change 2

Greenstone, Michael. "If We Dig Out All Our Fossil Fuels, Here's How Hot We Can Expect It to Get." *New York Times* 9 April 2015.

Weitzman, Martin. "A Review of William Nordhaus' The Climate Casino: Risk, Uncertainty, and Economics for a Warming World." *Review of Environmental Economics and Policy* Winter 2015. [Please focus on pages 145 – 152.]

Wed Mar 22: Renewables, subsidies, RPS

Borenstein, Severin. "The Private and Public Economics of Renewable Electricity Generation." *Journal of Economic Perspectives* 26.1 (2012): 67-92.

Roberts, David. "The Economic Limitations of Wind and Solar Power." *Vox.com* 24 June 2015.

Plumer, Brad. "Why Google Halted its Research into Renewable Energy." *Vox.com* 11 November 2014.

Roberts, David. "For the first time, a major US utility has committed to 100% clean energy." *Vox.com* 14 12 2018.

Mon Mar 27: Energy efficiency, standards, and info policies

Wolfram, Catherine. "The MPG Illusion." *Energy Economics Exchange* 3 Jun 2013.

Plumer, Brad. "Energy Efficiency Can Be Incredibly Valuable — But We Do Need to Measure it Properly." *Vox.com* 26 June 2015.

Davis, Fuchs and Gertler (summary of). "Cash for Coolers: A Good Policy?" *EI@Haas Research Review* (Fall 2012): pp 2,6.

Ito, Ida and Tanaka (summary of). "The Persistence of Moral Suasion and Economic Incentives: Field Experimental Evidence from Energy Demand." 2015.

Wed Mar 29: Environmental protection in developing countries

Jayachandran, Seema. "How Economic Development Influences the Environment." 2022. *Annual Review of Economics* 14: 229-252.

Mon Apr 3: Energy use in developing countries

Hanna, Rema and Paulina Oliva. "Moving up the Energy Ladder: The Effect of an Increase in Economic Well-Being on the Fuel Consumption Choices of the Poor in India." 2015. *AER P&P*.

Wolfram, Catherine, Ori Shelef and Paul Gertler. 2012. "How Will Energy Demand Develop in the Developing World?" *Journal of Economic Perspectives* 26(1).

Woody, Todd. "Here's Why Developing Countries Will Consume 65% of the World's Energy by 2040." *The Atlantic* 3 December 2013.

Wed Apr 5: Particulate matter

Tessum, Christopher W. et al. 2019. "Inequity in consumption of goods and services adds to racial–ethnic disparities in air pollution exposure." *PNAS*.

Thakrar, Sumil K. et al. 2020. "Reducing Mortality from Air Pollution in the United States by Targeting Specific Emission Sources." *Environmental Letters*.

Mon Apr 10: Water

CBC News. "1/3 of World's Major Aquifers are Being Sucked Dry, NASA Data Shows." 17 June 2015.

Mansur, Erin and Sheila Olmstead. "Use Prices to Conserve Water when Supplies are Scarce." *RFF.org* 2011.

Keiser, David and Shapiro, Joseph. 2019. "US Water Pollution Regulation over the Past Half Century: Burning Waters to Crystal Springs?" *Journal of Economic Perspectives* 33(4).