

PAI 777
The Economics of Environmental Policy
Spring 2024

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Office Hours:
Monday 10:00-11:30
Tuesday 10:00-noon
or by appointment

******* PLEASE NOTE THAT ALL PLANS FOR THE COURSE ARE TENTATIVE AND MAY
CHANGE AS CONDITIONS WARRANT *******

Course Description: This course provides an introduction into the principles of environmental economics, with a focus on policy applications. The principal problem in any economics course is how to best allocate scarce resources. This holds true for environmental economics as well. However, environmental resources differ from other goods that economists study in that there is usually no market for them. Thus, government policies are needed to maintain and improve environmental quality.

We begin by examining how economic incentives lead to environmental problems, and discussing various policies that address these problems. Because economic analysis requires information on both costs and benefits, we next discuss methods for valuing the benefits of environmental amenities. The course continues with applications to various policy issues, including energy and water resources and the environment in developing countries. We conclude with a discussion of the political economy of environmental issues.

Goals of the course: The main objective of this course is for you to learn how to think critically about issues relating to environmental economics. Upon completion of this course, you should be able to explain the economic rationale for government involvement in environmental issues, and be able to discuss what the impact of such involvement will be. In particular, it is hoped that the class will provide you with a better understanding of current issues relating to the environment.

Accomplishing these goals requires not only a mastery of the theory of environmental economics, but also an ability to apply these theories to real world issues. As such, much of the content of the course will apply the basic tools of environmental economics to current event issues.

Learning to apply economics to the real world takes practice. The assignments for this class are designed to get you thinking and writing using economic analysis. In addition, classroom discussion plays an important role in developing the skills to apply economic theory to the real world. Active participation in discussions, both in class and via e-mail (discussed below) is vital to success in this course. Don't be afraid to participate because you feel what you have to say isn't important or may not be correct. Many of the things we will discuss in this class have no right answers. Your opinions matter! In addition to in-class discussion, I will occasionally use the list to post follow-up questions to topics discussed in class. Please use this as another opportunity to express your opinions.

Prerequisites: The prerequisite for this course is PAI 723, Economics for Public Decisions, or an equivalent course in microeconomics. If you have any questions about whether or not you have taken an appropriate course, please see me as soon as possible.

Class Home Page: The home page for this class is:

<https://dcpopp.expressions.syr.edu/pai777/>

You can also connect to the home page through my personal home page, which can be found at:

<https://dcpopp.expressions.syr.edu>

The web site includes information about assignments and links to other useful economic sites. These links may be particularly useful as you work on your research paper.

E-mail discussion group: All students in the class are required to have an e-mail account and to check e-mail regularly. I have set up an e-mail discussion group for the class. All students are expected to subscribe to the mailing list. You may use this list for any class related activities, such as asking questions, continuing discussions from class, and instigating new discussions. I will use the list to keep you informed about assignments, answer questions, and instigate discussion. When messages are sent to the list, all students subscribed to the list will get the message.

I have already subscribed students who pre-registered for the course. If you have not yet been subscribed, please send an e-mail to listserv@listserv.syr.edu with the following message:

SUB EnviEcon Jan Smith

Note that this is all that need be in the body of the message, and that it must be typed in exactly as written, except, of course, that you should replace your name for Jan Smith. When you sign up, you will receive a message with detailed instructions for participating in the mailing list. ***This message will ask that you reply, so as to confirm that you intended to join the list. It is important that you remember to reply, or else you will not be added to the list!***

A couple of technical notes: E-mails sent to the list are sent to EVERYONE who subscribes to the list. If you want to send a personal e-mail to a specific class member (or to me), use their e-mail address, not the list's address. The list is a good place to ask questions about class materials, because everyone can see the answer. It is not the way to let me know that you are going to miss class on Monday. For that you should send an e-mail to me personally. Also, I am considered the owner of this list. If you experience any problems, please e-mail me directly. My e-mail address is dcpopp@syr.edu.

Reading: One book is required for this class:

Environmental Economics: An Introduction, 8th edition, by Barry C. Field & Martha K. Field

A second book is optional:

Economics of the Environment: Selected Readings, seventh edition, edited by Robert N. Stavins.

Both texts are available through the Syracuse University Online Textbook Store. The eighth edition of Field and Field is available electronically. If you prefer a print edition, older editions are available in print. The Stavins book is a compilation of readings from various journals, many of which appear on the syllabus. I include links to the original journal articles on the class web site, so purchasing this book is not required. However, you are welcome to purchase it if you find having the articles convenient.

Older editions of either text are fine. Note that older editions of the Stavins text may not have all the articles used in class that appear in the latest edition.

In addition to the text, there are several additional articles intended to supplement the text. The class web site includes links to these articles. When possible, direct links to the articles are provided. The remainder are available through the course reserve system at the Syracuse University library – a link to Blackboard, where these items can be found, is included for these articles.

These supplemental readings have two purposes: to expose you to influential work in environmental economics and to highlight the relevance of environmental economics to current events. The first goal is accomplished through journal articles written by professional economists. At times, these articles may get quite technical. When that occurs, you are encouraged to focus on the main arguments and conclusions of the paper, and to simply browse through the technical parts. The second goal is met by several shorter articles taken from current events publications. Articles in the *Review of Environmental Economics and Policy* and *Journal of Economic Perspectives* are particularly useful, as they fall under both categories. These articles usually provide summaries of work done by professional economists on current events issues. You may also find it helpful to consult other articles in these journals for your own research. In addition, I would be happy to help any student find the appropriate readings to fit their interests.

In addition to required readings, the syllabus also includes optional articles. These are marked with an asterisk (*). They are not included on the on-line reading list, but should be available at the library, usually in electronic form. Optional articles provide more detail on selected topics, and may be helpful for your research papers. In particular, Ph.D. students should find the optional articles a useful way to increase their exposure to the economic literature in the field.

Grading: Masters' Students: Your grade in this course will be based on four take-home quizzes (16.5% each), and a policy brief (34%). The first three take home quizzes will be handed out in class. Both the dates they are handed out and due are stated on the syllabus. These quizzes will focus on applications of the material discussed in class, and will be in the form of short problems or essay questions. The final take-home quiz will be available as a take-home quiz during the final exam period.

Ph.D. Students: Ph.D. students may choose to complete the assignments for masters' students listed above, or to instead complete the following assignments designed to get you thinking about the research process. Ph.D. students should come talk to me as soon as possible to discuss which option is appropriate for them. Students choosing the Ph.D. option will not take the exams. Instead, these Ph.D. students will complete a referee report of a working paper in the field. This will be due by the end of the final exam period, on **Tuesday, May 7**. In addition, the requirement for the research paper will be different, and will be divided into two parts:

- First, PhD students will complete a critical literature review (approximately 10 pages) on a topic of their interest related to the course. Students should meet with me to discuss both possible topics and to generate a list of relevant papers. The goal of the literature review is to get you thinking about potential research topics. This literature review is due on **Wednesday, March 6**.
- Second, the final paper for Ph.D. students will be a research proposal. That is, in addition to identifying an interesting question, you should think about *how* you would go about answering the question. Note that, given the time constraints of a one-semester course, it is not necessary that you carry out the research. This will be due at our last class meeting on **Monday, April 29**.

The grading for Ph.D. students choosing this option will be: the referee report (25%), the literature review (25%) and the research proposal (50%)

Finally, note that if you miss a class, it is your responsibility to find out if you missed any assignments or handouts. Not being present when an assignment was given out is **not** an acceptable excuse for missed or late work!

Policy Brief: The major assignment for this class is to prepare a policy brief on a current issue in environmental policy. The goal of the policy brief is to help a lay audience understand the issues surrounding current debates in environmental policy. The policy brief is a semester-long assignment and will be due on the last day of class. It should be roughly 10 and 15 pages in length, single-spaced (about 5,000 to 7,500 words). You may work in groups of up to three students on each brief.

I will hand out more details on the policy brief, including potential policy topics, later in the semester. The policy brief will apply the materials of the course to a public policy question. It should include a summary of the relevant theory that applies to your topic, and apply the theory to the problem to reach a conclusion. The policy brief will be due at our last class meeting on **Monday, April 29**. To check each group's progress, a 1-2 page outline of each policy brief will be due on **Wednesday, March 27**.

Academic Honesty: Syracuse University's [Academic Integrity Policy](#) reflects the high value that we, as a university community, place on honesty in academic work. The policy holds students accountable for the integrity of all work they submit and for upholding course-specific, as well as university-wide, academic integrity expectations. The policy governs citation and use of sources, the integrity of work submitted in exams and assignments, and truthfulness in all academic matters, including course attendance and participation. The policy states that any work a student submits for a course must be solely their own unless the instructor explicitly allows collaboration or editing. The policy also requires students to acknowledge their use of other peoples' language, images or other original creative or scholarly work through appropriate citation. These expectations extend to the new, fast-growing realm of artificial intelligence (AI) as well as to the use of websites that charge fees or require uploading of course materials to obtain exam solutions or assignments. Students are required to ask their instructor whether use of these tools is permitted – and if so, to what extent – before using them to complete any assignment or exam. Students are also required to seek advance permission from instructors if they wish to submit the same work in more than one course. Failure to receive this permission in advance may violate the Academic Integrity Policy. Under the policy, instructors who seek to penalize a student for a suspected violation must first report the violation to the Center for Learning and Student Success (CLASS). Students may not drop or withdraw from courses in which they face a suspected violation. Instructors must wait to assign a final course grade until a suspected violation is reviewed and upheld or overturned. Upholding Academic Integrity includes abiding by instructors' individual course expectations, which may include the protection of their intellectual property. Students should not upload, distribute, or otherwise share instructors' course materials without permission. Students found in violation of the policy are subject to grade sanctions determined by the course instructor and non-grade sanctions determined by the School or College where the course is offered, as outlined in the Violation and Sanction Classification Rubric. Students are required to read an online summary of the University's academic integrity expectations and provide an electronic signature agreeing to abide by them twice a year during pre-term check-in on MySlice.

The Violation and Sanction Classification Rubric establishes recommended guidelines for the determination of grade penalties by faculty and instructors, while also giving them discretion to select the grade penalty they believe most suitable, including course failure, regardless of violation level. Any established violation in this course may result in course failure regardless of violation level.

Of particular importance in this class, while you are free to cite the views of others in your work, the final product must be *in your own words*, and any references to the works of others, whether directly quoted or merely paraphrased, must be cited. Using artificial intelligence to complete assignments is prohibited.

Original class materials (handouts, assignments, tests, etc.) and recordings of class sessions are the intellectual property of the course instructor. It is important that everyone feel free to participate in class and not worry about recordings being distributed further. Thus, while you may download these materials for your use in this class, you may not provide these materials to other parties (e.g., web sites, social media, other students) without permission. Doing so is a violation of intellectual property law and of the student code of conduct.

Important Resources: Mental health and overall well-being are significant predictors of academic success. As such it is essential that during your college experience you develop the skills and resources effectively to navigate stress, anxiety, depression, and other mental health concerns. Please familiarize yourself with the range of resources the Barnes Center provides (<https://ese.syr.edu/bewell/>) and seek out support for mental health concerns as needed. Counseling services are available 24/7, 365 days, at 315-443-8000, and I encourage you to explore the resources available through the Wellness Leadership Institute, <https://ese.syr.edu/bewell/wellness-leadership-institute/>.

Syracuse University values diversity and inclusion; we are committed to a climate of mutual respect and full participation. There may be aspects of the instruction or design of this course that result in barriers to your inclusion and full participation in this course. I invite any student to contact me to discuss strategies and/or accommodations (academic adjustments) that may be essential to your success and to collaborate with the Center for Disability Resources (CDR) in this process. If you would like to discuss disability-accommodations or register with CDR, please visit [Center for Disability Resources](#). Please call (315) 443-4498 or email disabilityresources@syr.edu for more detailed information.

The CDR is responsible for coordinating disability-related academic accommodations and will work with the student to develop an access plan. Since academic accommodations may require early planning and generally are not provided retroactively, please contact CDR as soon as possible to begin this process.

Religious holidays: [Syracuse University's Religious Observances Policy](#) recognizes the diversity of faiths represented in the campus community and protects the rights of students, faculty, and staff to observe religious holy days according to their traditions. Under the policy, students are given an opportunity to make up any examination, study, or work requirements that may be missed due to a religious observance, provided they notify their instructors no later than the academic drop deadline. For observances occurring before the drop deadline, notification is required at least two academic days in advance. Students may enter their observances in MySlice under Student Services/Enrollment/My Religious Observances/Add a Notification.

Course Outline

I. Introduction

January 17 – What is Environmental Economics?

Reading: Field, Chapters 1 & 2

“The ethics gap,” *The Economist*, December 2, 2000, p. 78.

Fullerton, Don and Robert N. Stavins, (1998) “How Economists See the Environment,” *Nature*, 395, 433-434, reprinted in Readings.

DePillis, Lydia, “Industries Balk at Cost of Cleaner Air,” *The New York Times*, November 14, 2023, B1, B4.

Vascellaro, Jessica E., “Green Groups See Potent Tool in Economics,” *The Wall Street Journal*, August 23, 2005.

II. Tools of Economic Analysis

January 22 – Market Failures

Reading: Field, Chapter 3 (review: optional)

Field, Chapter 4

Ostrom, Elinor (2009), “A General Framework for Analyzing Sustainability of Social-Ecological Systems,” *Science*, 325(5939), 419-422, reprinted in *Readings*.

Davenport, Coral, “What if Farmers Were Taxed on Water? In California, Some Are,” *The New York Times*, January 4, 2024, A1, A13.

Turkewitz, Julie, “This Land Is Your Land, and Yours, and Yours …,” *The New York Times*, September 29, 2017, A10.

“A rising tide,” *The Economist*, September 20, 2008, 97-98.

“Common sense,” *The Economist*, September 14, 2019, 72.

“Firefall and footfall,” *The Economist*, February 26, 2022.

*Frischman, Brett M., Alain Marciano, and Giovanni Battista Ramello (2019), “Tragedy of the Commons after 50 Years,” *Journal of Economic Perspectives*, 33(4), 211-228.

*Stavins, Robert N. (2011), “The Problem of the Commons: Still Unsettled After 100 Years,” *American Economic Review*, 101(1), 81-108, reprinted in *Readings*.

January 24 – Modeling Pollution

Reading: Field, Chapter 5

Eder, Steve, “One Apple Orchard. 5,000 Government Rules,” *The New York Times*, December 28, 2017, A1.

Wald, Matthew L., “Fossil Fuels’ Hidden Cost Is in Billions, Study Says,” *The New York Times*, October 20, 2009, p. A16.

“Giving up carbs,” *The Economist*, February 27, 2021, 60-61.

“We were expecting you,” *The Economist*, September 4, 2021, 73.

*Lade, Gabriel E. and Ivan Rudik (2020), “Costs of inefficient regulation: Evidence from the Bakken,” *Journal of Environmental Economics and Management* 102:102336.

III. Government Intervention in Environmental Policy

January 29 – Should the Government Intervene?

Reading: Field, Chapters 9 & 10

Fowlie, Meredith, “Only Who Should Prevent Forest Fires?” Energy Institute Blog, UC Berkeley, November 13, 2018, <https://energyathaas.wordpress.com/2019/02/04/only-who-should-prevent-forest-fires/>.

Breeden, Aurelien, “Rooster’s Noise Lawsuit a Win for France’s Barnyard Bellowers,” *The New York Times*, January 25, 2021, A11.

Fuller, Thomas and Ivan Penn, “No Fires Yet, But California Is Paying Now,” *The New York Times*, July 22, 2019, A1, A13.

“Building in Wildland-Urban Interface Areas Boosts Wildfire Costs,” *NBER Digest*, March 2020.

*Banzhaf, H. Spencer, Timothy Fitzgerald, and Kurt Schneir (2013), “Nonregulatory Approaches to the Environment: Coasean and Pigouvian Perspectives,” *Review of Environmental Economics and Policy*, 7(2), 238-258.

*Coase, Ronald (1960), “The Problem of Social Cost,” *The Journal of Law and Economics*, 3, 1-44, reprinted in *Readings*.

January 31 – Command and Control Policies for the Environment

Reading: Field, Chapter 11

Aldy, Joseph E. and William A. Pizer (2016), “Alternative Metrics for Comparing Domestic Climate Change Mitigation Efforts and the Emerging International Climate Policy Architecture,” *Review of Environmental Economics and Policy*, 10(1), 3-24.

Sallee, James, “What is a Car?” Energy Institute Blog, UC Berkeley, April 10, 2023, <https://energyathaas.wordpress.com/2023/04/10/what-is-a-car/>.

Lipton, Eric, “E.P.A. Offers Lifeline to the dirtiest Coal Plants,” *The New York Times*, August 25, 2018, A1.

*Auffhammer, Maximilian and Ryan Kellogg (2011), “Clearing the Air? The Effects of Gasoline Content Regulation on Air Quality,” *American Economic Review*, 101(6), 2687-2722.

*Hubbell, Bryan J., Richard V. Crume, Dale M. Evarts, and Jeff M. Cohen (2010), “Policy Monitor: Regulation and Progress under the 1990 Clean Air Act Amendments,” *Review of Environmental Economics and Policy*, 4(1), 122-138.

*Stavins, Robert N. (2006), “Vintage-Differentiated Environmental Regulation,” *Stanford Environmental Law Journal*, 25(1), 29-63.

February 5 & 7 – Emissions Fees and Subsidies

Reading: Field, Chapter 12

Davis, Lucas, "More Good News for EV Buyers" Energy Institute Blog, UC Berkeley, October 16, 2023,

<https://energyathaas.wordpress.com/2023/10/16/more-good-news-for-ev-buyers/>.

Klenert, David, Linus Mattauch, Emmanuel Combet, Ottmar Edenhofer, Cameron Hepburn, Ryan Rafaty, and Nicholas Stern (2018), "Making carbon prices work for citizens," *Nature Climate Change*, 8, 669-677.

Davenport, Coral, "After Nobel, Economist Talks Climate Tax," *The New York Times*, October 14, 2018, A24.

Leonhardt, David, "The Problem With Putting a Price on the End of the World," *The New York Times Magazine*, April 9, 2019,

Porter, Eduardo, "British Columbia's Carbon Tax Yields Real-World Lessons," *The New York Times*, March 2, 2016, B1, B9.

Tankersley, Jim, "When to Buy Electric Car? Rules Just Got Trickier." *The New York Times*, August 19, 2022, B6.

"The perfect carbon price," *The Economist*, June 3, 2023, 62.

*Metcalf, Gilbert E. (2021), "Carbon Taxes in Theory and Practice," *Annual Review of Resource Economics*, 13, 245-265.

*Parry, Ian W.H., Margaret Walls and Winston Harrington, (2007), "Automobile Externalities and Policies," *Journal of Economic Literature*, 45(2), 373-399.

*Pizer, William A. and Steven Sexton (2019), "Distributional Impacts of Energy Taxes," *Review of Environmental Economics and Policy*, 13(1), 104-123.

February 12 & 14 – Tradable Permits

Reading: Field, Chapter 13

Schmalensee, Richard and Robert Stavins (2017), "Lessons Learned from Three Decades of Experience with Cap-and-Trade," *Review of Environmental Economics and Policy*, 11(1), 59-79.

Gillis, Justin, "In Price Tag on Carbon, Plans to Save the Planet," *The New York Times*, May 30, 2014, A1, A20-A21.

"Cleaning up," *The Economist*, February 27, 2021, 57.

"Setting a new CORSIA," *The Economist*, July 4, 2020, 57-58.

"Up in the air," *The Economist*, May 28, 2022, 64-65.

*Chen, Gabriel, Robert Stavins, Robert Stowe, and Richard Sweeney (2012), "The SO₂ Allowance Trading System and the Clean Air Act Amendments of 1990: Reflections on Twenty Years of Policy Innovation," *Harvard Kennedy School Working Paper*.

*Ellerman, Denny, Claudio Marcantonini and Aleksandar Zaklan (2016), "The EU ETS: Eight Years and Counting," *Review of Environmental Economics and Policy*, 10(1), 89-107.

*Goulder, Lawrence H., Richard D. Morgenstern, Clayton Munnings, and Jeremy Schreifels (2017), "China's national carbon dioxide emission trading system," *Economics of Energy & Environmental Policy*, 6(2), 1-18.

Take-home quiz 1 handed out in class on Wed., February 14. Due in Class Wed., February 21.

February 19 – Policy Instrument Choice: Theory and Air Pollution

Reading: Goulder, Lawrence H. and Ian W.H. Parry (2008), “Instrument Choice in Environmental Policy,” *Review of Environmental Economics and Policy*, 2(2), 152-174.

Pindyck, Robert S. (2007), “Uncertainty in Environmental Economics,” *Review of Environmental Economics and Policy*, 1(1), 45-65.

Borenstein, Severin, “Understanding and Refining Emissions Markets”, Energy Institute Blog, UC Berkeley, July 6, 2020, <https://energyathaas.wordpress.com/2020/07/06/refining-and-understanding-emissions-markets/>.

*Aldy, Joseph E., Dallas Burtraw, Carolyn Fischer, Meredith Fowlie, Roberton C. Williams III, and Maureen L. Cropper (2022), “How is the US Pricing Carbon? How Could We Price Carbon?” *NBER Working Paper #30545*.

*Fowlie, Meredith, Christopher R. Knittel, and Catherine Wolfram (2012), “Sacred Cars? Cost-effective Regulation of Stationary and Nonstationary Pollution Sources,” *American Economic Journal: Economic Policy* 4(1), 98-126

*Stavins, Robert (2019), “The Future of U.S. Carbon-Pricing Policy,” *NBER Working Paper #25912*.

February 21 – Policy Instrument Choice: Water

Reading: Field, Chapter 14

Fisher-Vanden, Karen and Sheila Olmstead (2013), “Moving Pollution Trading from Air to Water: Potential, Problems, and Prognosis,” *Journal of Economic Perspectives*, 27(1), 147-172, reprinted in *Readings*.

Kerr, Suzi, Suzie Greenhalgh, and Geoff Simmons 2015. “The Taupo Nitrogen Market: The World’s Only Diffuse Source Trading Programme,” *Moto Note #20*.

Barringer, Felicity, “A Plan to Curb Farm-to-Watershed Pollution of Chesapeake Bay,” *The New York Times*, April 13, 2007, p. A10.

Plumer, Brad and Nadja Popovich, “Poor Americans Exposed to Unsafe Water, study Shows,” *The New York Times*, February 13, 2018, A10.

“Good job, Newark,” *The Economist*, April 17, 2021, 27.

*Keiser, David A., Catherine L. Kling, and Joseph S. Shapiro (2019), “The low but uncertain measured benefits of US water quality policy,” *PNAS* 116(12) 5262-5269.

*Keiser, David and Joseph S. Shapiro (2019), “US Water Pollution Regulation over the Past Half Century: Burning Waters to Crystal Springs?” *Journal of Economic Perspectives*, 33(4), 51-75.

*Olmstead, Sheila and Jiameng Zheng (2021), “Water Pollution Control in Developing Countries: Policy Instruments and Empirical Evidence,” *Review of Environmental Economics and Policy* 15(2): 261-280.

February 26 & 28 – Behavioral Economics and Policy: Energy Efficiency

Reading: Gillingham, Kenneth and Karen Palmer (2014), “Bridging the Energy Efficiency Gap: Policy Insights from Economic Theory and Empirical Evidence,” *Review of Environmental Economics and Policy*, 8(1), 18-38.

Journal of Policy Analysis and Management Point/Counterpoint on Internalities:

Allcott, Hunt and Cass R. Sunstein (2015), “Regulating Internalities,” *Journal of Policy Analysis and Management* 34(3):698-705.

Mannix, Brian F. and Susan E. Dudley (2015), “The Limits of Irrationality as a Rationale for Regulation,” *Journal of Policy Analysis and Management* 34(3):705-712.

Allcott, Hunt and Cass R. Sunstein (2015), “Counterpoint to Six Potential Arguments to ‘Regulating Internalities’,” *Journal of Policy Analysis and Management* 34(3):712-715.

Mannix, Brian F. and Susan E. Dudley (2015), “Please Don’t Regulate My Internalities,” *Journal of Policy Analysis and Management* 34(3):715-718.

Davis, Lucas, “Here Come the Lumens,” *Energy Institute Blog*, UC Berkeley, March 27, 2023, <https://energyathaas.wordpress.com/2023/03/27/here-come-the-lumens/>.

Jack, Kelsey, “Do Monthly Bills Undermine the Impact of Carbon Pricing?” *Our 2 Cents Blog*, July 10, 2019, <http://emlab.msi.ucsb.edu/news/blog/do-monthly-bills-undermine-impact-carbon-pricing>.

Wolfram, Catherine. “Closing the Energy Efficiency Gap for Low-Income Households”, *Energy Institute Blog*, UC Berkeley, October 21, 2019, <https://energyathaas.wordpress.com/2019/10/21/closing-the-energy-efficiency-gap-for-low-income-households/>.

*Carlsson, Fredrik, Christina Gravert, Olof Johansson-Stenman, and Verenza Kurz (2021), “The Use of Nudges as Environmental Policy Instruments,” *Review of Environmental Economics and Policy* 15(2): 216-237.

*Davis, Lucas W., Alan Fuchs, and Paul Gertler (2014), “Cash for Coolers: Evaluating a Large-Scale Appliance Replacement Program in Mexico,” *American Economic Review: Economic Policy* 6(4): 207-238.

*Fowlie, Meredith, Michael Greenstone, Catherine Wolfram (2018), “Do Energy Efficiency Investments Deliver? Evidence from the Weatherization Assistance Program,” *Quarterly Journal of Economics*, 133(3), 1597-1644

Take-home quiz 2 handed out in class on Wed., February 28. Due in Class Wednesday, March 6.

February 28 & March 4 – Distributional Effects of Environmental Policies

Reading: Banzhaf, Spencer, Lala Ma, and Christopher Timmins (2019), “Environmental Justice: The Economics of Race, Place, and Pollution,” *Journal of Economic Perspectives*, 33(1), 185-208.

Benear, Lori Snyder (2022), “Energy Justice, Decarbonization, and the Clean Energy Transformation,” *Annual Review of Resource Economics*, 14, 647-668.

Weber, Jeremy G. (2020), “How Should We Think about Environmental Policy and Jobs? An Analogy with Trade Policy and an Illustration from U.S. Coal Mining,” *Review of Environmental Economics and Policy*, 14(1), 44-66.

Fowlie, Meredith, “Carbon Pricing, Environmental Justice, Compromise” Energy Institute Blog, UC Berkeley, August 7, 2023, <https://energyathaas.wordpress.com/2023/08/07/carbon-pricing-environmental-justice-compromise/>

Popp, David, “Government investments can smooth worker transitions in a green economy, but must be used carefully,” Smart Prosperity Institute Guest Blog, June 25, 2020, <https://institute.smartprosperity.ca/WorkerTransitions>.

Raimi, Daniel, “Jobs, Equity, and Efficiency: Reconciling Priorities In a Transition to a Clean Energy Economy,” *Resources*, October 2020.

Scheiber, Noam, “A Sticking Point in Climate Plan,” *The New York Times*, December 13, 2021, B1.

Zhong, Raymond and Popovich, Nadja, “How Dangerous Air Reflects Racist Policy From 8 Decades Ago,” *The New York Times*, March 11, 2022, A14.

*Walker, W. Reed (2013), “The transitional costs of sectoral reallocation: Evidence from the Clean Air Act and the Workforce,” *Quarterly Journal of Economics*, 128(4), 1787-1835.

*Wolverton, Ann (2023), “Environmental Justice Analysis for EPA Rulemakings: Opportunities, and Challenges,” *Review of Environmental Economics and Policy*, 17(2), 346-353.

IV. Valuing Environmental Benefits & Costs

March 6 – Revealed Preference Approaches

Reading: Field, Chapter 7, pp. 126-139.

“Analyzing Benefits,” Chapter 7 in *Guidelines for Preparing Economic Analyses*, Environmental Protection Agency, December 2010, sec. 7.1-7.3.1.

Colmer, Jonathan (2020), “What is the meaning of (statistical) life? Benefit-cost analysis in the time of COVID-19,” *Oxford Review of Economic Policy* 36: S56-S63.

Appelbaum, Binyamin, “A Life’s Value? It May Depend on the Agency,” *The New York Times*, February 17, 2011, A1, A3.

*Mendelsohn, Robert and Sheila Olmstead, “The Economic Valuation of Environmental Disamenities: Methods and Applications,” *Annual Review of Environment and Resources*, 2009, pp. 325-347.

*Robinson, Lisa A. (2007), “How US Government Agencies Value Mortality Risk Reductions,” *Review of Environmental Economics and Policy*, 1(2), 283-299.

March 18 – Stated Preference Techniques

Reading: Field, Chapter 7, pp. 139-145.

“Analyzing Benefits,” Chapter 7 in *Guidelines for Preparing Economic Analyses*, Environmental Protection Agency, December 2010, sec. 7.3.2.

Bishop, Richard C. *et al.* (2017) “Putting a Value on injuries to natural assets: The BP oil spill,” *Science* 356, 253-254.

Kling, Catherine L., Daniel J. Phaneuf, and Jinhua Zhao (2012), “From Exxon to BP: Has Some Number Become Better than No Number?” *Journal of Economic Perspectives*, 26(4), 3-26, reprinted in *Readings*.

*Johnston, Robert J, Kevin J. Boyle, Wiktor (Vic) Adamowicz, Jeff Bennett, Roy Brouwer, Trudy Ann Cameron, W. Michael Hanemann, Nick Hanley, Mandy Ryan, Riccardo Scarpa, Roger Tourangeau, and Christian A. Vossler. 2017. “Contemporary Guidance for Stated Preference Studies,” *Journal of the Association of Environmental and Resource Economists*, 4(2): 319-405.

*Whittington, Dale (2010), “What Have We Learned from 20 Years of Stated Preference Research in Less-Developed Countries?” *Annual Review of Resource Economics*, 2, 209-236.

March 20 – Estimating Benefits

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March 25 – The Costs of Environmental Policies

Reading: Field, Chapter 8

Harrington, Winston, Richard D. Morgenstern, and Peter Nelson (2000), "On the Accuracy of Regulatory Cost Estimates," *Journal of Policy Analysis and Management*, 19(2), 297-322.

Shapiro, Joseph and Reed Walker, "Is Air Pollution Regulation Too Stringent?" Energy Institute Blog, UC Berkeley, December 14, 2020, <https://energyathaas.wordpress.com/2020/12/14/is-air-pollution-regulation-too-stringent/>.

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March 27 & April 1 – Making Use of Value Measures – Benefit-Cost Analysis

Reading: Field, Chapter 6

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V. Energy and Water Resources

April 3 – Energy Pricing

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- *Mason, Charles F., Lucija A. Muehlenbachs, and Sheila M. Olmstead (2014), “The Economics of Shale Gas Development,” *Resources for the Future Discussion Paper #14-42*.
- *Livernois, John (2009), “On the Empirical Significance of the Hotelling Rule,” *Review of Environmental Economics and Policy*, 3(1), 22-41, reprinted in *Readings*.
- *Baumeister Christiane and Lutz Kilian (2016), “Forty Years of Oil Price Fluctuations: Why the Price of Oil May Still Surprise Us,” *Journal of Economic Perspectives*, 30(1), 139-160.
- *Holland, Stephen P., Erin T. Mansur, Nicholas Z. Muller, and Andrew J. Yates (2020), “Decompositions and Policy consequences of an Extraordinary Decline in Air Pollution from Electricity Generation,” *American Economic Journal: Economic Policy* 12(4): 244-274.
- *Killian, Lutz (2016), “The Impact of the Shale Oil Revolution on U.S. Oil and Gasoline Prices,” *Review of Environmental Economics and Policy*, 10(2), 188-205.

Take home quiz 3 handed out in class on Wednesday, April 3. Due in Class Wednesday, April 10.

April 8 – Alternative Energy Technologies

- Reading:* Davis, Lucas W., Catherine Hausman, and Nancy L. Rose (2023), "Transmission Impossible? Prospects for Decarbonizing the US Grid," *Journal of Economic Perspectives*, 37(4), 155-180.
- Gross, Samantha, "Why are fossil fuels so hard to quit?" Brookings Essay, June 2020, <https://www.brookings.edu/essay/why-are-fossil-fuels-so-hard-to-quit/>.
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- "Marching bans," *The Economist*, October 3, 2020, 64.
- "Solarpunked," *The Economist*, October 15, 2022, 67.
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- *Popp, David (2019), "Environmental Policy and Innovation: A Decade of Research", *International Review of Environmental and Resource Economics*, 13(3-4), 265-337.

VI. The Environment in Developing Countries

April 15 – Growth and the Environment

Reading: “An Analytical Framework for Inclusive Green Growth,” chapter 1 in *Inclusive Green Growth: The Pathway to Sustainable Development*, World Bank, Washington, DC, 2012.

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“Carrion call,” *The Economist*, August 26, 2023, 77.

“Looking beyond GDP,” *The Economist*, September 17, 2022, 28-29.

“The natural question,” *The Economist*, February 6, 2021, 62.

“Sovereign wealth, sovereign whims,” *The Economist*, June 15, 2019, 40.

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April 17 – Environmental Issues in Developing and Emerging Economies

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“Fire escape,” *The Economist*, May 8, 2021, 46-47.

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VII. International Environmental Policies

April 22 – Policies to Promote Environmental Protection in Developing Countries

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"A day late and a dollar short," *The Economist*, November 25, 2023, 64-65.

"A pale shade of green," *The Economist*, March 9, 2019, 37-38.

"Africa's carbon boom," *The Economist*, December 2, 2023, 40-42.

"Hot tempers," *The Economist*, November 26, 2022, 49.

"Up a tree," *The Economist*, November 6, 2021, 54-55.

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April 24 – Trade and the Environment

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Copeland, Brian R., Joseph S. Shapiro, and M. Scott Taylor (2021), "Globalization and the Environment," *NBER Working Paper #28797* (sections 1, 4-4.1.2, 4.2, and 5 required. The remaining sections are optional.)

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VIII. Political Economy

April 29 – The Political Economy of Environmental Policy

Reading: Meckling, Jonas *et al.* (2015), “Winning coalitions for climate policy,” *Science*, 349(6253), 1170-1171.

Tabuchi, Hiroko and Danny Hakim, “Improving Air Quality With Better Chemistry,” *The New York Times*, October 17, 2016, B1, B5.

“Not green but clean,” *The Economist*, January 14, 2023, 62.

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POLICY BRIEFS DUE IN CLASS MONDAY, APRIL 29

Final take-home quiz available from Thursday, May 2 to Tuesday, May 7