

Swedish Program

Environmental Economics

August-December 2022

Syllabus

This course studies the multiple links between the economy and the environment, and analyzes theoretically and empirically the set of policy instruments normally used to address modern environmental problems. It also consider environmental policy through political economy lenses, namely it analyzes political and societal factors that affect what policy instruments governments tend to choose. Typical questions that will be answered are: What are the most pressing environmental problems? How and why does economic activity create these problems? What are the policy instruments that governments and other relevant decision makers can use to protect the environment? What are the economics costs of environmental regulation and is there a case for a "double dividend" from environmental policy? How do we determine the optimal level of environmental protection at societal level? What are the economic effects of climate change and why does it prove particularly difficult to pass and implement climate policies?

Intended learning outcomes: By completing this course a successful student will be able to

- Describe and analyze environmental problems as a result of economic activity;
- Assess the costs and benefits of different policy instruments for environmental protection;
- Critically discuss societal and economic factors that facilitate or jeopardize the application of environmental policies and regulation;
- Describe the economic cost of climate change and the different methods used to assess such costs;
- Use data and econometric analysis to describe environmental problems, quantify their impacts on societal outcomes and evaluate policies to address such problems.

Pre-requisites: Two courses in microeconomics, two courses in macroeconomics, and one course in calculus.

Teachers:

Pamela Campa, Assistant Professor of Economics at Stockholm Institute of Transition Economics (SITE) at the Stockholm School of Economics.

- E-mail: pamela.campa@hhs.se

Guest lecturer: Elena Paltseva. , Associate Professor at Stockholm Institute of Transition Economics (SITE) at the Stockholm School of Economics. Email: Elena.Paltseva@hhs.se

Webpage: Readings, lecture notes, and other information about the course will be uploaded on the course webpage. It is thus very important that you visit it often.

Lectures: There will be 12 three-hour classes. They include standard lecturing, discussions, presentations of group work, a study visit and individual presentations about your experience using a carbon calculator.

Readings: The course reading will mostly consist of articles and reports (see below for a preliminary list, subject to revision). There will be no single required textbook. However, occasional chapters from Phaneuf and Torquate (2016) "A course in Environmental Economics: Theory, Policy and Practice", Cambridge University Press, will be used during the course.

Attendance and participation: Regular attendance is strongly encouraged and incentivized; at the beginning of each class the teacher will take note of attendance and your score will contribute to the participation grade.

Active participation in class discussions is expected. You are strongly encouraged to read the lecture slides in advance, and you will also have to read some of the class material in advance to solve some of the short assignments.

Assignment: You will work on a home assignment in groups of three to four. More details on the assignment will be provided throughout the course. Solutions to the assignment will be provided during a lecture.

Individual presentations will be based on some reflections from using a carbon calculator to track your CO2 impact.

Group presentations will be based on a paper that you will choose from a list to be provided at the beginning of the course. Each paper will study an environmental problem or policy. As part of the presentation, you will also have to analyze this problem in the Swedish context. You will receive more instructions during the course.

Written final exam: A 2-hour exam will be held in during the exam week, and will cover all the material of the course. It will include both analytical and essay-type questions. An example of exam questions will be provided early in the course.

Grading: Your final grade will be calculated according to the following breakdown:

- Participation: 5 %
- Individual presentation: 15%
- Group presentation: 20 %
- Home assignment: 20%
- Final exam: 40 %

Course topics and reading list: (please note that the reading list may be updated as the course proceeds. Compulsory reading is marked by *.) Lecture notes will be provided before every class and constitute the core of the course material; you are also expected to read the introduction to the papers listed below as compulsory.

The Economics of Environmental Protection

- *Bhattacharyya (2001). Chapter 23.4.
- Hawken, Paul, ed. Drawdown: The most comprehensive plan ever proposed to reverse global warming. Penguin, 2017.

Background: Fossil Fuel Markets. Oil and Natural Gas. Fracking Revolution.

- *Bhattacharyya, Ch. 14.2.1-2 (scan for historical perspective), 14.3.3.1-3, Ch. 15
- *[Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources](#), (2015), US Environmental Protection Agency, Chapter 2,
- Behar, Alberto, Ritz, Robert A., [OPEC vs US shale: Analyzing the shift to a market-share strategy](#), Energy Economics (2017),
- *[BP Energy Outlook](#) (2022),
- World Energy Outlook (2013), chapter 13
- Frondel and Horvath (2019), [The U.S. Fracking Boom: Impact on Oil Prices](#), The Energy Journal, Volume 40, issue Number 4,
- Griffin (1985), [OPEC behavior: a test of alternative hypothesis](#), American Economic Review, 75 (5)
- Kilian (2017), [The Impact of the Fracking Boom on Arab Oil Producers](#), The Energy Journal, Volume 38, 6
- Samuelson, R., (2008). "[Oil: An Introduction for New Zealanders](#)" Ministry of Economic Development of New Zealand, section 1 (other sections are optional but also helpful reading)

Energy Security. Recent global shocks (Covid-19 pandemic, Russia-Ukraine war) and implications for energy security and green transition.

- *Le Coq, C. and Paltseva, E. (2009) [Measuring the security of external energy supply in the European Union](#), Energy Policy 37: 4474-4481.

- Le Coq, C. and Paltseva, E. (2012) [Assessing Gas Transit Risks: Russia vs. the EU](#), *Energy Policy*, 4: 642-650.
- *Le Coq, C. and Paltseva, E. (2022) [What does the Gas Crisis Reveal About European Energy Security?](#), FREE Policy Brief Series
- Rainer Quitzow, German Bersalli, Laima Eicke, Joschka Jahn, Johan Lilliestam, Flavio Lira, Adela Marian, Diana Süsser, Sapan Thapar, Silvia Weko, Stephen Williams, Bing Xue, (2021), "[The COVID-19 crisis deepens the gulf between leaders and laggards in the global energy transition](#)", *Energy Research & Social Science*, Vol. 74,
- [The OECD Green Recovery Database: Examining the environmental implications of COVID-19 recovery policies](#), April 2021

Externalities, Market Failures and Environmental Pollution

- *Phaneuf, Daniel J. (Daniel James), and Till Requate. *A Course in Environmental Economics: Theory, Policy, and Practice*. Cambridge: Cambridge University Press, 2017. ISBN 9780521178693. Chapters 1 and 3.
- Linn, J., E. Mastrangelo, and D. Burtraw, (2014). "Regulating greenhouse gases from coal power plants under the Clean Air Act," *Journal of the Association of Environmental and Resource Economists* 1: 97-134

Valuation of Environmental Goods: Hedonic Method, Application to Housing Market

- *Currie, Janet, Lucas Davis, Michael Greenstone, and Reed Walker. (2015). "Environmental Health Risks and Housing Values: Evidence from 1,600 Toxic Plant Openings and Closings." *American Economic Review*, 105(2): 678-709
- *Muehlenbachs, L., E. Spiller, and C. Timmins. (2015). "The Housing Market Impacts of Shale Gas Development." *American Economic Review*, 105(12): 3633-59
- Michael Kremer, Jessica Leino, Edward Miguel, Alix Peterson Zwane, Spring Cleaning: Rural Water Impacts, Valuation, and Property Rights Institutions, *The Quarterly Journal of Economics*, Volume 126, Issue 1, February 2011, Pages 145–205
- Sandra E. Black, Do Better Schools Matter? Parental Valuation of Elementary Education, *The Quarterly Journal of Economics*, Volume 114, Issue 2, May 1999, Pages 577–599

Valuation of Environmental Goods: The Health Effects Approach

- *Currie, Janet and Nilsson, Peter, and Simenova, Emilia and Walker, Reed (2019) "Congestion Pricing, Air Pollution and Children's Health". *Journal of Human Resources*, October 14.
- *Grönqvist, Hans and Nilsson, Peter and Robling, Per-Olof (2020) "Understanding How Low Levels of Early Lead Exposure Affect Children's Life-Trajectories". *Journal of Political Economy*, Vol. 128, Issue 9, 202.
- Jans, Jenny, Per Johansson, and J. Peter Nilsson. "Economic status, air quality, and child health: Evidence from inversion episodes." *Journal of health economics* 61 (2018): 220-232.
- Kenneth Y. Chay and Michael Greenstone (2003). "The Impact of Air Pollution on Infant Mortality: Evidence from Geographic Variation in Pollution Shocks Induced by a Recession". *Quarterly Journal of Economics*, 118(3), 1121-1167.

Environmental Policy Instruments: Incentive-Based Approaches

- *Bhattacharyya (2001). Chapters 23.5, 11.5, 11.6
- *Martin, Ralf, Mirabelle Muûls, Laure B. De Preux, and Ulrich J. Wagner 2014. "Industry compensation under relocation risk: A firm-level analysis of the EU emissions trading scheme." *American Economic Review* 104, no. 8: 2482-2508.
- *Andersson, Julius J (2019). "Carbon Taxes and CO 2 Emissions: Sweden as a Case Study." *American Economic Journal: Economic Policy* 11(4): 1-30.

- * Campa (2019). "Press and Leaks: Do Newspapers Reduce Toxic Emissions?" *Journal of Environmental Economics and Management*, Vol. 91, pp 184-202.

Environmental Policy Instruments: Command and Control Approaches, Inspections and Fines

- *Campa, P. and Muehlenbachs, L. (2022). "Cost and benefits of in-kind penalties: evidence from environmental enforcement cases", *CEPR Working Paper*.
- Duflo, Esther, Michael Greenstone, Rohini Pande, and Nicholas Ryan. "The value of regulatory discretion: Estimates from environmental inspections in India." *Econometrica* 86, no. 6 (2018): 2123-2160.

The Climate and the Economy

- *Hassler, John and Krussell, Per (2013). The climate and the economy. *Mistra-SWECIA Report*.
- *Dell, Melissa, Benjamin F. Jones, and Benjamin A. Olken (2012). "Temperature shocks and economic growth: Evidence from the last half century." *American Economic Journal: Macroeconomics* 4, no. 3 (2012): 66-95
- *Campa, P. and Szucs. F. (2020). "Facing the hard truth: Evidence from Climate Change Ignorance". *Mimeo*

A political economy approach to environmental policy

- *Oates, Wallace E., and Paul R. Portney. "The political economy of environmental policy." In *Handbook of environmental economics, vol. 1, pp. 325-354. Elsevier, 2003*
- *Gagliarducci, Stefano, M. Daniele Paserman, and Eleonora Patacchini. Hurricanes, climate change policies and electoral accountability. No. w25835. National Bureau of Economic Research, 2019.
- Herrnstadt, Evan, and Erich Muehlegger. "Weather, salience of climate change and congressional voting." *Journal of Environmental Economics and Management* 68, no. 3 (2014): 435-448.