

Swedish Program

Environmental Economics

Spring 2024

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. 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? 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;
- Use data and econometric analysis to describe environmental problems, quantify their impacts on societal outcomes and evaluate policies to address such problems.

Pre-requisites: One course in microeconomics and one course in econometrics.

Teachers:

Pamela Campa, Associate Professor of Economics at Stockholm Institute of Transition Economics (SITE) at the Stockholm School of Economics. E-mail: pamela.campa@hhs.se. OH: by appointment – please make it by email or in person after a lecture. Every week there are three 20-minute slots available. No OH on the day before the exam.

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, quizzes, question trial, a study visit, individual presentations of research papers, and playing an educational game on CO2 impacts. The lectures are held at the Stockholm School of Economics (see “Schedule”).

Readings: The course reading will mostly consist of lecture notes and reports. The lecture notes are based on a number of articles and book chapters (see below for a preliminary list, subject to revision). To prepare for the final exam, you will not need to read the articles and book chapters, although you are encouraged to do so if you want to deepen your understanding of the topics discussed. However, to succeed at the exam you have to study at home from the lecture notes. The course material is slightly technical and quite dense, implying that only attending the lecture will hardly be enough to prepare for the exam. There will be no single required textbook.

Attendance and participation: Regular attendance is strongly encouraged and incentivized. Please email Pamela Campa when you are not able to attend one lecture, explaining the reason for your absence. Failure to do so will affect your participation points.

Active participation in class discussions is expected. You are strongly encouraged to read the lecture slides in advance. That will enhance participation and improves the extent to which you will learn during the class.

Assignments: You will work on **two home assignments in groups of three to four**. See the excel document titled “Schedule” posted in the course webpage for assignment dates. Suggested solutions

to the assignment will be posted and discussed during the lecture following your assignment submission.

Group presentations (2 students per group – not subject to changes unless there is an odd number of students enrolled, in which case only one group will include 3 students) will be based on a paper that you will choose from a list that is posted in the course webpage. Each paper will study an environmental problem or policy. The presentation will cover questions such as: What is the research question investigated in this paper? What is the context of this study? What is the methodology used in the main part of the analysis? What are the main results? What is your critical assessment of the paper?

Written final exam: A 3-hour exam will be held on a date to be announced soon (see schedule) and will cover all the material of the course. It will include both analytical and essay-type questions. You can find an example of past exam in the course webpage.

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

- Participation: 5 %. The points for participation will be 90 if you attend 11 out of 12 lectures (you are excused for an absence that is notified and motivated). Exceptions to this rule can be discussed with the instructor. For a higher grade, active participation in class discussion is required.
- Group presentation: 25%. The presentations will be graded based on how well you answered all the questions listed above (see paragraph *Group presentations*), as well as an overall assessment of the quality of the presentation.
- Home assignment: 15% each.
- Final exam: 40 %

Bonus points: We will do an in-class quiz at the end of some of the lectures (4 in total). The first three best performers in three quizzes (based on total points) will receive a bonus of respectively 5, 3 and 2 points on course grade. Since you are allowed to miss one class, if you complete all the quizzes, your five best quiz-grades will be counted. If you miss more than one lecture you cannot participate to the competition and you cannot qualify for the bonus points.

You will also get a bonus point for winning respectively the question trial and the climate game (more details on this in class).

Grading scale. We follow the grading scale below:

A+	97–100
A	93–96
A-	90–92
B+	87–89
B	83–86
B-	80–82
C+	77–79
C	73–76
C-	70–72
D+	67–69
D	65–66
D-	below 65

Course topics and reading list: (please note that the reading list is preliminary and might be updated as the course proceeds. Lecture notes will be provided before every class and constitute the core of the course material; you would also benefit a lot from reading the introduction to the papers marked with an asterisk.

Schedule. TBC

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.

Externalities, Market Failures and Environmental Pollution

- *Kolstad (2011). *Environmental Economics*. Ch 4 and 5
- 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
- *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.
- 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.

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

- *Campa, P. and Muehlenbachs, L. (2022). "Addressing Environmental Justice through In-Kind Court Settlements", *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

Reading list for guest lectures from Elena Paltseva

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, sections 2.1 and 2.2
- Behar, Alberto, Ritz, Robert A., [OPEC vs US shale: Analyzing the shift to a market-share strategy](#), Energy Economics (2017),
- *[BP Energy Outlook](#) (2022), pp. 1-56
- World Energy Outlook (2013), chapter 13
- Griffin (1985), [OPEC behavior: a test of alternative hypothesis](#), American Economic Review, 75 (5)
- Ahlvik, Lassi, Jørgen Juel Andersen, Jonas Hveding Hamang, Torfinn Harding, ["Quantifying supply-side climate policies"](#), mimeo

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.
- *Campa, P., Paltseva, E. and Vlessing, Z. (2023) ["Exploring the Impact from the Russian Gas Squeeze on the EU's Greenhouse Gas Reduction Efforts"](#), FREE Policy Brief Series
- Gasser, P. (2020) [A review on energy security indices to compare country performances](#), Energy Policy.
- *IEA (March 2022) [Global Energy Review: CO2 Emissions in 2021](#), summary

- Le Quéré, C., Jackson, R.B., Jones, M.W. et al. [Temporary reduction in daily global CO2 emissions during the COVID-19 forced confinement](#). Nat. Clim. Chang. 10, 647–653 (2020).