

Economics 677 (L01) Environmental Economics

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Office Hours:	By appointment	Fall 2017	

Textbook(s):

The course mainly covers research papers in empirical Environmental Economics.

At the beginning of the course we will quickly review the theory of externality, which provides the theoretical foundation of many of the empirical questions in Environmental Economics. For this part, you might find it useful to consult an advanced Microeconomics textbook, or a Public Economics textbook such as:

Laffont, Jean-Jacques. *Fundamentals of Public Economics*. Cambridge, MA: MIT Press, 1994

The research papers that we will study use designed-based empirical methods to answer causal questions. Some (although not all) of these empirical methods are very effectively summarized in the following book:

Angrist, J., and S. Pischke. *Mostly Harmless Econometrics*. Princeton University Press, 2008

Book(s) on Reserve: None

Desire2Learn: This course will make use of the Desire2Learn (D2L) platform. Students who are registered in the course can log on at <http://d2l.ucalgary.ca> through their student centre. Please note that D2L features a class e-mail list that may be used to distribute course-related information. These e-mails go to your University of Calgary e-mail addresses only.

Course Outline:

This course studies modern environmental problems as a result of market failures, and analyses empirically the existing evidence about government responses to these problems. A substantial part of the course will be focused on empirical studies of the functioning of environmental policies. By surveying the environmental economics literature, we will learn and apply standard techniques for designed-based empirical analysis. For most of the course, we will spend an entire lecture analysing one paper, so as to gather a thorough understanding of the empirical tools used in the paper, as well as the environmental problem and solutions there discussed and proposed. This is a list of topics that will be covered (notice that this lists borrows heavily from: Michael Greenstone *14.475 Environmental Economics and Government Responses to Market Failure*, Spring 2005. (Massachusetts Institute of

Technology: MIT OpenCourseWare), <http://ocw.mit.edu> (Accessed 30 Jun, 2015). License: [Creative Commons BY-NC-SA](#)):

- Externalities, Pigovian Taxes, and the Coasian Solution
- Defining Welfare Changes and Cost-Benefit Analysis
- Valuation of Nonmarket Goods with a Focus on Environmental Goods: Hedonic Method, Theory and Applications
- Valuation of Nonmarket Goods with a Focus on Environmental Goods: The Health Effects Approach, Applications
- Environmental Policy Instruments: Permits and Trading
- Environmental Policy Instruments: Inspections and Fines
- Environmental Policy Instruments: Voluntary Regulation
- The Political Economy of Environmental Policy

Grade Determination and Final Examination Details

There are four course requirements. First, there will be a midterm exam, to be scheduled in the first weeks after the beginning of the course. Second, there will be a number of home assignments, which can take the form of either referee reports (i.e. short writing exercises based on papers on the syllabus, to be handed in the day the paper is discussed in class), or replications of papers discussed in class. Third, there will be a class presentation. Finally, there is a 5 page paper proposal. There will not be a final exam.

- You can choose one of two grading schemes:
 - i) Participation, 15%; Homework (2 assignments), 50%. Midterm exam, 20%. Class Presentation 15%.
 - ii) Participation, 15%; Homework (1 assignment) 20%. Midterm exam, 20%. Class Presentation 15%. Paper proposal 30%.
- Students may work on homework assignments and class presentation in pairs. The presentation will be about a paper that you choose from the list below.
- The second scheme is intended for PhD students (particularly those wishing to write one chapter of their dissertation on issues related to the Environmental Economics), the first for MA's or other PhD students. The goal is that everyone read papers closely and, by the end of the term, has read enough to be able to formulate an original research project.

Tests and final exams are marked on a numerical (percentage) basis, then converted to letter grades. The course grade is then calculated using the weights indicated above. The following letter grade equivalences will apply:

A+	95 – 100	B	73 – 76	C-	60 – 62
A	85 – 94	B-	70 – 72	D+	56 – 59
A-	80 – 84	C+	67 – 69	D	50 – 55
B+	77 – 79	C	63 – 66	F	0 – 49

A passing grade on any particular component of the course is not required for a student to pass the course as a whole.

Notes:

- All students must comply with the regulations published in the University Calendar concerning "Intellectual Honesty," "Examinations," etc.
- Students seeking reappraisal of a piece of graded term work (term paper, essay, etc.) should discuss their work with the Instructor *within fifteen days* of the work being returned to the class.
- It is the student's responsibility to request academic accommodations. If you are a student with a documented disability who may require academic accommodation and have not registered with the Disability Resource Centre, please contact their office at 403-220-8237. Students who have not registered with the Disability Resource Centre are not eligible for formal academic accommodation. You are also required to discuss your needs with your instructor no later than fourteen (14) days after the start of this course.
- Students who are unable to write one assignment or the research proposal because of an illness, family emergency or religious observance can benefit of an extension of the deadline up to a maximum of five days. In any event, the assignment must be submitted before we discuss the solutions in class. Failure to do so will result in failure to pass the course. Documentation MUST be provided.

Faculty of Arts Program Advising and Student Information Resources

- Have a question, but not sure where to start? The Arts Students' Centre is your information resource for everything in Arts! Drop in at SS102, call them at 403-220-3580 or email them at artsads@ucalgary.ca. You can also visit the Faculty of Arts website at <http://arts.ucalgary.ca/undergraduate> which has detailed information on common academic concerns, including program planning and advice.
- For registration (add/drop/swap), paying fees and assistance with your Student Centre, contact Enrolment Services at 403-210-ROCK [7625] or visit them in the MacKimmie Library Block.
- Online writing resources are available at <http://www.ucalgary.ca/ssc/resources/writing-support>

Safewalk/Campus Security: 403 220 5333
Emergency Assembly Point: Professional Faculties Food Court

Detailed outline

Here follows a list of relevant papers for this course.

The papers labelled as “class material” will be discussed in class. The lecture will cover the general topic that the paper deals with, and the empirical methodology used. You will write a referee report for at least one of the papers discussed in class, at your choice. The referee report is to be submitted on D2L by midnight of the day before we discuss the paper in class. Please double-check with me if you are not sure when a paper is going to be discussed in class.

The papers labelled as “for students’ presentation” can be chosen for your class presentation. You can work on the class presentation in pairs. The paper that you have chosen for your presentation is to be submitted by email to me by October 31th. You will also indicate a second choice. If more than one group has selected the same paper, the paper will be assigned on a “first-come-first-served” basis.

When a paper is a *Working Paper* or *mimeo*, please double-check online before reading it, as its status and version might have changed since the time I wrote this list (normally the most updated version of an unpublished paper is found on the author(s) website.)

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

Muehlenbachs, L., E. Spiller, and C. Timmins. Forthcoming. “The Housing Market Impacts of Shale Gas Development.” *American Economic Review* (class material)

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 (class material)

Bui, Linda TM, and Christopher J. Mayer. 2003. “Regulation and capitalization of environmental amenities: evidence from the toxic release inventory in Massachusetts.” *Review of Economics and Statistics* 85.3: 693-708. (for students’ presentation)

Greenstone, Michael, and Justin Gallagher. 2008. “Does Hazardous Waste Matter? Evidence from the Housing Market and the Superfund Program.” *The Quarterly Journal of Economics*: 951-1003. (for students’ presentation)

Chay, Kenneth Y., and Michael Greenstone. 2005. “Does air quality matter? Evidence from the housing market.” *Journal of political economy* 113.2: 376-424. (for students’ presentation)

Smith, V. Kerry, and Ju-Chin Huang. 1995. “Can markets value air quality? A meta-analysis of hedonic property value models.” *Journal of political economy*: 209-227. (for students’ presentation)

Topic II. Valuation of Environmental Goods: The Health Effects Approach

Chay, Kenneth Y., and Michael Greenstone. “The Impact of Air Pollution on Infant Mortality: Evidence from Geographic Variation in Pollution Shocks Induced by a Recession.” 2003. *The Quarterly journal of economics* 118.3: 1121-1167. (class material)

Deschenes, Olivier and Greenstone, Michael and Shapiro, Joseph S. (2017). Defensive Investments and the Demand for Air Quality: Evidence from the NOx Budget Program and Ozone Reductions. *American Economic Review*, Forthcoming (for students' presentation)

Schlenker, Wolfram, and W. Reed Walker. Forthcoming. Airports, air pollution, and contemporaneous health. *Review of Economic Studies*. (for students' presentation)

Currie, Janet, Michael Greenstone, and Enrico Moretti. 2011. "Superfund Cleanups and Infant Health." *American Economic Review*, 101(3): 435-41. (for students' presentation)

Currie, Janet, and Reed Walker. "Traffic Congestion and Infant Health: Evidence from E-ZPass." 2011. *American Economic Journal. Applied Economics* 3.1: 65. (for students' presentation)

Currie, J., Hanushek, E., Kahn, E. M., Neidell, M., & Rivkin, S. 2009. "Does Pollution Affect School Absenteeism?". *Review of Economics and Statistics*, Nov. 2009, 91 #4: 682-694. (for students' presentation)

Chen, Yihsu, and Alexander Whalley. 2012. "Green infrastructure: The effects of urban rail transit on air quality." *American Economic Journal: Economic Policy*: 58-97. (for students' presentation)

Topic III. Valuation of Environmental Goods: The Household Production Function Approach

Hausman, Jerry A., Gregory K. Leonard, and Daniel McFadden. "A utility-consistent, combined discrete choice and count data model assessing recreational use losses due to natural resource damage." 1995. *Journal of Public Economics* 56.1: 1-30. (for students' presentation)

Topic IV. Environmental Policy Instruments: Prices vs. Quantities, Permits and Trading

Fowlie, M., Stephen, P. Holland, and Erin T. Mansur. 2012 "What do Emissions Markets Deliver and to Whom? Evidence from Southern California's NOx Trading Program." *American Economic Review*, 102(2), 965-993. (class paper)

Joskow, Paul L., Richard Schmalensee, and Elizabeth M. Bailey. 1998. "The market for sulfur dioxide emissions." *The American Economic Review* 88.4: 669. (for students' presentation)

Fowlie, Meredith, Mar Reguant, and Stephen P. Ryan. Market-based Emissions Regulation and Industry Dynamics. *Journal of Political Economy*. 2016, 124(1): 249-302 (for students' presentation)

Fowlie, Meredith, and Jeffrey M. Perloff. 2013. "Distributing pollution rights in cap-and-trade programs: are outcomes independent of allocation?" *Review of Economics and Statistics* 95.5: 1640-1652. (for students' presentation)

Fowlie, Meredith. 2010. "Emissions Trading, Electricity Restructuring, and Investment in Pollution Abatement." *American Economic Review*, 100(3): 837-69. (for students' presentation)

Topic V. Environmental Policy Instruments: Inspections and Fines, Voluntary Regulations, Regulation through Revelation

Campa (2017). "Press and Leaks: Do Newspapers Reduce Toxic Emissions?" *University of Calgary WP #2015-10* (class paper)

Bizet, R. Bonev, P. L  v  que, F. (2017) Evaluating the Effect of Local Monitoring on Nuclear Safety: Evidence from France. Working Paper (for students' presentation)

Duflo, E., Greenstone, M., Pande, R., and Ryan, N. (2013). Truth-telling by Third-party Auditors and the Response of Polluting Firms: Experimental Evidence from India (with). *Quarterly Journal of Economics* 128 (4): 1499-1545 (for students' presentation)

Duflo, E., Greenstone, M., Pande, R., and Ryan, N. (2014). The Value of Discretion in the Enforcement of Regulation: Experimental Evidence and Structural Estimates from Environmental Inspections in India. *NBER Working Paper* (for students' presentation)

Muehlenbachs, Lucija, Elisabeth Newcomb Sinha, and Nitish Ranjan Sinha. "Strategic Release of News at the EPA." 2011. *Resources for the Future Discussion Paper* 11-45. (for students' presentation)

Topic VI. Costs of Environmental Regulations, Double Dividend Hypothesis

Walker, W. Reed. 2013 "The Transitional Cost of Sectoral Reallocation: Evidence from the Clean Air Act and the Workforce." *The Quarterly Journal of Economics* 1787 (2013): 1835. (class paper)

Greenstone, Michael. 2002. "The Impacts of Environmental Regulations on Industrial Activity: Evidence from the 1970 and 1977 Clean Air Act Amendments and the Census of Manufactures." *Journal of Political Economy* 110.6: 1175-1219. (for students' presentation)

Greenstone, Michael, John A. List, and Chad Syverson. 2012. The effects of environmental regulation on the competitiveness of US manufacturing. *NBWR WP No. w18392*. (for students' presentation)

Goulder, Lawrence H. 1998. "Environmental Policy Making in a Second-Best Setting." *Journal of Applied Economics* 1, no. 2. (for students' presentation)

Topic VI. Policy application: climate change

Deschenes, Olivier, and Michael Greenstone. 2007. "The economic impacts of climate change: evidence from agricultural output and random fluctuations in weather." *The American Economic Review*: 354-385. (class paper)

Fisher, A. C., Hanemann, W. M., Roberts, M. J., & Schlenker, W. 2012. The economic impacts of climate change: evidence from agricultural output and random fluctuations in weather: comment. *The American Economic Review*, 3749-3760. (class paper)

Deschenes, O., & Greenstone, M. 2012. The economic impacts of climate change: evidence from agricultural output and random fluctuations in weather: reply. *The American Economic Review*, 102(7), 3761-3773. (class paper)

Barreca, A., Clay, K., Deschenes, O., Greenstone, M., & Shapiro, J. S. Forthcoming. Adapting to climate change: The remarkable decline in the US temperature-mortality relationship over the 20th century. *Journal of Political Economy*. (for students' presentation)

Albouy, D., Graf, W., Kellogg, R., and Wolff, H. Forthcoming. Climate amenities, climate change, and American quality of life. *Journal of the Association of Environmental and Resource Economists* (for students' presentation)

Schlenker, Wolfram, W. Michael Hanemann, and Anthony C. Fisher. 2005. "Will US agriculture really benefit from global warming? Accounting for irrigation in the hedonic approach." *American Economic Review*: 395-406. (for students' presentation)

Topic VII. The Political Economy of Environmental Policy

Burgess, Robin, Matthew Hansen, Benjamin A. Olken, Peter Potapov, and Stefanie Sieber. 2012. "The Political Economy of Deforestation in the Tropics." *The Quarterly Journal of Economics* 127, no. 4: 1707-1754. (class paper)

Jia, Ruixue. 2012. "Pollution for Promotion." *Mimeo UC San Diego*. (for students' presentation)

List, John A., and Daniel M. Sturm. 2006. "How Elections Matter: Theory and Evidence from Environmental Policy." *The Quarterly journal of economics* 121.4: 1249-1281. (for students' presentation)

Folke, Olle. 2014. "Shades of brown and green: party effects in proportional election systems." *Journal of the European Economic Association* 12.5: 1361-1395. (for students' presentation)

Topic VIII. Topics at the Intersection of Environmental and Development Economics

Hanna, Rema, Esther Duflo, and Michael Greenstone. Forthcoming. Up in smoke: the influence of household behavior on the long-run impact of improved cooking stoves. *American Economic Journal: Economic Policy* (for students' presentation)

Galiani, Sebastian and Gertler, Paul J. and Schargrodsky, Ernesto. 2005. Water for Life: The Impact of the Privatization of Water Services on Child Mortality. *Journal of Political Economy*, Vol. 113, pp. 83-120. (for students' presentation)

Duflo, Esther and Greenstone, Michael and Guiteras, Raymond P. and Clasen, Thomas. 2015 Toilets Can Work: Short and Medium Run Health Impacts of Addressing Complementarities and Externalities in Water and Sanitation. *Becker Friedman Institute for Research in Economics Working Paper*. (for students' presentation)

Burgess, Robin and Deschenes, Olivier and Donaldson, Dave. 2015. Weather and Death in India. Mechanism and Implications for Climate Change. *Mimeo University of Chicago* (for students' presentation)

Kudamatsu, Masa and Persson, Torsten and Stromberg, David. 2012. Weather and Infant Mortality in Africa. *Mimeo Stockholm University*. (for students' presentation)