

ECON 9320. Environmental and Resource Economics II

Spring 2019

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Office Hours: Tuesday 2:00 – 3:30 or by appointment or by chance

Course Description

This class is one of two in the environmental economics field. The classes can be taken in any order.

This class will look at public goods and externalities in the context of environmental and natural resource problems. It will consider policy tools and other institutions for addressing these effects. It will also consider the problem of estimating people's demand for environmental goods, necessary information for some policy approaches. Finally, it will consider applied evaluation of some policies.

The course's objectives are to introduce you to environmental problems and policy solutions, to teach state-of-the-art econometric procedures for designing and evaluating policies, and to give you practice in the activities of professional research economists.

Required texts

The following book is required:

- Daniel J. Phaneuf and Till Requate, *A Course in Environmental Economics: Theory, Policy and Practice*, Cambridge University Press, 2017.

The following texts are recommended but not required:

- A Myrick Freeman III, Joseph A. Herriges, and Catherine L. Kling, *The Measurement of Environmental and Resource Values: Theory and Methods*, 3rd ed., Resources for the Future, 2014.
- Nick Hanley, Jason F. Shogren, and Ben White, *Environmental Economics in Theory and Practice*, 2nd ed., Palgrave-Macmillan, 2007.
- Richard Cornes and Todd Sandler, *The Theory of Externalities, Public Goods, and Club Goods*, 2nd ed., Cambridge University Press, 1996.

In addition, there will be numerous readings assigned. Hard-to-come-by readings will be available on the iCollege page.

Grades

class participation	40%
referee report	10%
research proposal	
-intermediate deadlines	10%
-final paper	30%
-presentation	10%

Assignments will be marked down 1/3 letter grade for each day they are late.

Note on class participation

While some days will be predominantly lecture-based, others will be based on seminar-style discussion of a paper or group of papers. On these days, students will be called on at random to present a 10-15 minute overview of the paper, after which we will have a group discussion. Thus, class participation is a critical part of the semester.

Readings marked with a double-star (**) are designated as student-led discussion. But students are expected to be able to contribute to discussion for all papers marked with a * as well.

Note on writing assignments

We will have two writing assignments. The first assignment is a referee report. You must pick a recent (within three years) working paper to review. Excellent places to find such papers include:

- the NBER environment/energy group
<http://www.nber.org/papersbyprog/EEE.html>;
- the NBER environmental meetings
<http://www.nber.org/summer-institute/> → choose a year and search for the <eee> line;
- Resources for the Future (RFF)
www.rff.org/research → look for documents labeled Discussion Paper
- Zew
<https://www.zew.de/en/publikationen/zew-discussion-papers/>
→ Go to Environmental & Resource Economics in drop-down menu
- Fondazioni Eni Enrico Mattei (FEEM)
<http://www.feem.it/getpage.aspx?id=73&sez=Publications&padre=20&tab=1>

But you are not limited to these. If you are thinking strategically the paper will be related to your own research proposal (see below).

You must prepare a 1-page cover letter to the imaginary editor for whom you are reviewing the paper, summarizing the paper, evaluating its contribution and merit, and offering advice on accepting or rejecting the paper. Separately, you must provide a 2-4 p. (single-spaced) review which serves to give more details to the editor but also constructive comments to the author.

You should be clear about what you think is necessary and what you think are merely suggestions for improvement. Be limited in the latter if you are recommending acceptance or revision; you can be more forthcoming if you are rejecting the paper.

The second, bigger, assignment is a research paper. The nature of the assignment will depend on whether you're in your second year or third (or higher) year.

If this is your second year, you will prepare a research proposal. It must relate to the environment in some way. If you want to develop a project from the fall, please discuss with me.

The research proposal can be thought of as a building block to a real paper. As an exercise, it could also be thought of as practice for a grant proposal or your own dissertation proposal. It should pose a well-defined research question, motivated from the literature and/or policy problems, and accompanied by a conceptual framework for thinking about the question (i.e. a theoretical model and/or detailed empirical model). Then it should outline the steps that would be required for conducting the research, including the data that would be needed, and outline a plan for carrying it out. Finally, it might, if possible, have some preliminary work – perhaps summary statistics and rough cuts at the raw data (a comparison of means before and after an event, for example). The final document should be 10-20 pages double spaced, 12 pt. font, not counting tables and figures.

If this is your third year (or higher), you will write an actual paper. You should develop a project begun in another class or with your advisor. The final paper should be 20-30 pages double spaced, 12 pt. font, not counting tables and figures.

In either case, you will have intermediate deadlines of (i) choice of topic; (ii) 3 p. overview, with research question, 5+ citations to literature, statement of your contribution, and identification of data (if relevant); and (iii) a rough draft of your paper -- with remaining gaps acknowledged and discussion of your plans to fill them.

Writing assignments will be graded on your analysis, your application to questions of policy and academic interest, and your writing. The Writing Studio is a valuable resource for students who need help with their writing. All final writing assignments will be distributed to the entire class.

Deadlines

The deadlines for these assignments are as follows:

Feb 1 -- meet with me to discuss your research paper & your choice of paper to review

March 1 -- referee report due to me by 3 PM (email is fine)

March 8 – 3 p. version of research proposal due by 3 PM (email is fine)

April 5 -- rough draft of paper due to me by 3 PM

April 26 -- final paper due to me & entire class by 5 PM

May 2 -- class presentations during final exam time

Academic Honesty. Please see the Policy on Academic Honesty (Section 409).

Course Outline

** indicates student-led discussion

* indicates otherwise highest priority reading

◦ indicates optional reading

Introduction

Jan 15 Introduction to environmental economics

- * Phaneuf & Requate, Chs. 1-3.
- John V. Krutilla, 1967, "Conservation Reconsidered," *AER* 57(4): 777-89.
- H. Spencer Banzhaf, 2018, "The Environmental Turn in Natural Resource Economics," *Journal of the History of Economic Thought*, forthcoming <https://osf.io/preprints/socarxiv/ca7eb/>

Externalities and Public Goods

Jan 17 Theory of externalities

- * Phaneuf & Requate, Ch. 1
- Cornes & Sandler Chs. 3-4.
- Steven G. Medema, 2009, *The Hesitant Hand: Taming Self-Interest in the History of Economic Ideas*, Princeton University Press, Chs. 2-3.

Jan 22 Non-rivalry, excludability, and Samuelson's theory of public goods

- * Cornes & Sandler Ch. 6.
- Paul A. Samuelson, 1954, "The Pure Theory of Public Expenditure," *RESTAT* 36: 387-89, and 1955, "A Diagrammatic Exposition of a Theory of Public Expenditure," *RESTAT* 37: 350-56.
- Maxime Desmarais-Tremblay, 2017, "Musgrave, Samuelson, and the Crystallization of the Standard Rationale for Public Goods," *History of Political Economy* 49(1):59-92.

Jan 24 Commons and open access goods

- * Cornes & Sandler §8.4 - 8.5.
- * H. Spencer Banzhaf, Timothy Fitzgerald, and Kurt Schnier, 2013, "Non-Regulatory Approaches to the Environment: Coasean and Pigouvian Perspectives," *REEP* 7(2): 238-58
- H. Scott Gordon, 1954, "The Economic Theory of a Common-Property Resource: The Fishery," *JPE* 62(2): 124-42.

- Jan 29 Open access goods, cont'd
- ** Caleb M. Koch and Heinrich H. Nax, 2017, "Rethinking Free-Riding and the Tragedy of the Commons," https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3075935
- Jan 31 Coasean and new institutional approaches
- * Ronald H. Coase, 1960, "The Problem of Social Cost," *Journal of Law and Economics* 3(1): 1-44.
- * Elinor Ostrom, 1990, *Governing the Commons: The Evolution of Institutions for Collective Action*, Cambridge: Cambridge University Press, Chs. 1, 3.
- * Harold Demsetz, 1967, "Toward a Theory of Property Rights," *AER* 57(2): 347-59.
- Terry L. Anderson and P.J. Hill, 1975, "The Evolution of Property Rights: A Study of the American West," *Journal of Law and Economics* 18(1): 163-79.
- Feb 5 Coase & NIE cont'd
- ** Oliver Browne, 2018, "The Economic Value of Clarifying Property Rights: Evidence from Water in Idaho's Snake River Basin," Working Paper. https://www.dropbox.com/s/m2x3tqrtzf8x85n/Oliver_Browne_JMP.pdf?dl=0
- Richard Hornbeck, 2010, "Barbed Wire: Property Rights and Agricultural Development," *QJE* 125(2): 767-810.
- Feb 7 Liability, regulation & enforcement
- * Phaneuf & Requate, Ch. 10.
- * Jay P. Shimshack, 2014, "The Economics of Monitoring and Enforcement," *Annual Review of Resource Economics* 6:339-60.
- Henry Butler, 2008, "Defense of Common Law Environmentalism," *Case Western Reserve Law Review* 58: 705-52.
- Feb. 12 Monitoring and enforcement, cont'd
- ** Esther Duflo, Michael Greenstone, Rohini Pande, and Nicholas Ryan, 2018, "The Value of Regulatory Discretion: Estimates from Environmental Inspections in India," *Econometrica* 86(6): 2123-60.
- Feb 14 Environmental federalism and spatial heterogeneity
- * Daniel L. Millimet, 2014, "Environmental Federalism: A Survey of the Empirical Literature," *Case Western Reserve Law Rev.* 64(4): 1669-1757.

** Stephen P. Holland, Erin T. Mansur, Nicholaz Z. Muller, and Andrew J. Yates, 2016, "Are There Environmental Benefits from Driving Electric Vehicles? The Importance of Local Factors," *AER* 106(12): 3700-29.

◦ H. Spencer Banzhaf and B. Andrew Chupp, 2012, "Fiscal Federalism and Interjurisdictional Externalities: New results and an Application to US Air Pollution," *Journal of Public Economics* 96: 449-64.

Feb 19 Environmental federalism and political economy

** Matthew E. Kahn, Pei Li, and Daxuan Zhao, 2015, "Water Pollution Progress at Borders: The Role of Changes in China's Political Promotion Incentives," *AEJ: Economic Policy* 7(4): 223-42.

◦ Robin Burgess et al., 2012, "The Political Economy of Deforestation in the Tropics," *QJE* 127(4): 1707-54.

Natural Resources Dynamics

Feb 21 Nonrenewable resources

* Hanley, Shogren, & White, Chs. 7-8.

◦ Harold Hotelling, 1931, "The Economics of Exhaustible Resources," *JPE* 39: 137-75

Feb 26 Nonrenewable Resources, cont'd

** Soren T. Anderson, Ryan Kellogg, and Stephen W. Salant, 2018, "Hotelling Under Pressure", *JPE* 126(3): 984-1026.

Feb 28 Renewable resources: Fisheries

* Hanley, Shogren, & White, Ch. 9.

◦ M. Scott Taylor, 2011, "Buffalo Hunt: International Trade and the Virtual Extinction of the North American Bison," *AER* 101(7): 3162-95.

March 5 Renewable resources: Forestry

* Hanley, Shogren, & White, Ch. 10.

Welfare Economics

March 7 Measures of individual welfare -- consumer surplus

- * Phaneuf & Requate, Ch. 14 and review Micro I notes
- Daniel Slesnick, 1998, "Empirical Approaches to the Measurement of Welfare," *JEL* 36(4): 2108-65.
- Tuba Tunçel and James K. Hammitt, 2014, "A New Meta-Analysis on the WTP/WTA Disparity," *JEEM* 68(1): 175-187.
- Arnold. C. Harberger, 1971, "Three Basic Postulates for Applied Welfare Economics: An Interpretive Essay," *JEL* 9(3): 785-97.

March 12 Welfare aggregation

- * Review Micro II notes
- * Slesnick 1998 (op cit.), §3
- * Charles Blackorby and David Donaldson, 1990, "A Review Article: The Case Against the Use of the Sum of Compensating Variations in Cost-Benefit Analysis," *Canadian J. of Economics* 23(3): 471-94.

March 14 Discounting

- * Phaneuf & Requate, §21.1
- * Christian Gollier and James K. Hammitt, 2014, "The Long-Run Discount Rate Controversy," *Annual Review of Resource Economics* 6: 273-95.
- Richard W. Tresch, 2002, "The Rate of Discount for Public Investments," Ch. 24 of *Public Finance: A Normative Theory*, 2nd ed., Elsevier.
- Kenneth J. Arrow et al., 2013, "Should Governments Use a Declining Discount Rate in Project Analysis?" *REEP* 8(2): 145-63.
- Martin L. Weitzman, 1998, "Why the Far-Distant Future Should be Discounted at its Lowest Possible Rate," *JEEM* 36: 201-8.

[Spring Break]

March 26 Uncertainty

- * Freeman, Herriges, Kling, Ch. 5 (up to p. 151).
- * Robert S. Pindyck, 2007, "Uncertainty in Environmental Economics," *REEP* 1(1): 45-65.
- Jinhua Zhao and Catherine L. Kling, 2009, "Welfare Measures when Agents can Learn: A Unifying Theory," *Economic Journal* 119: 1560-85.
- Paul Mensink and Till Requate, 2005, "The Dixit-Pindyck and the Arrow-Fisher-Hanemann-Henry Option Values are not Equivalent," *Resource and Energy Economics* 27: 83-8.
- Ian W.R. Martin and Robert S. Pindyck, 2015, "Averting Catastrophes: The Strange Economics of Scylla and Charybdis," *AER* 105(10): 2947-85.
- Kenneth J. Arrow, 2009, "A Note on Uncertainty and Discounting in Models of Economic Growth," *Journal of Risk and Uncertainty* 38(2): 87-94.

Nonmarket Valuation

March 28 Nonmarket valuation: Introduction

- * Phaneuf & Requate, Ch. 15
- ** Geoffrey Heal, 2003, "Bundling Biodiversity," *Journal of the European Economic Association* 1(2/3): 553-60.

April 2 Travel cost model and demand for outdoor recreation

- * Phaneuf & Requate, Chs. 16-17
- * English et al., 2018, "Estimating the Value of Lost Recreation Days from the Deepwater Horizon Oil Spill." *JEEM* 91: 26-45.

April 4 Locational choice, property values, and hedonics: Introduction and hedonic first stage

- * Phaneuf & Requate, Ch. 18
- * Charles Tiebout, 1956, "A Pure Theory of Local Expenditures," *JPE* 64: 416-24.
- H. Spencer Banzhaf, 2018, "Difference-in-difference Hedonics," <http://www2.gsu.edu/~prchsb/Papers/Diff-in-Diff%20Hedonics%20revised%20April%202018.pdf>
- Kelly C. Bishop and Alvin D. Murphy, 2018, "Valuing Time-Varying Attributes using the Hedonic Model: When is a Dynamic Approach Necessary?" *RESTAT*, forthcoming.

April 9 Hedonics: The second stage

- * Timothy J. Bartik, 1987, "The Estimation of Demand Parameters in Hedonic Models," *JPE* 95(1): 81-88.
- ** Kelly Bishop and Christopher Timmins, 2019, "Estimating the Marginal Willingness to Pay Function without Instrumental Variables," *Journal of Urban Economics* 109:66-83.
- Ivar Ekeland, James J. Heckman, and Lars Nesheim, 2004, "Identification and Estimation in Hedonic Models," *JPE* 112(1): S60-109.

April 11 Sorting models

- ** Richard Freeman, Wenquan Liang, Ran Song, and Christopher Timmins, 2017, "Willingness to Pay for Clean Air in China," NBER Working Paper 24157.
- Nicolai V. Kuminoff, V. Kerry Smith, and Christopher Timmins, 2013, "The New Economics of Equilibrium Sorting and Policy Evaluation Using Housing Markets," *JEL* 51(4): 1007-62.
- Nicolai V. Kuminoff, 2012, "Partial Identification of Preferences from a Dual-Market Sorting Equilibrium," <http://www.public.asu.edu/~nkuminof/K12.pdf>

April 16 Averting behavior and health valuation

- * Phaneuf & Requate, Ch. 20

April 18 Averting behavior and health valuation, cont'd

- ** Olivier Deschênes, Michael Greenstone, and Joseph S. Shapiro, 2017, "Defensive Investments and the Demand for Air Quality: Evidence from the NO_x Budget Program," *AER* 107(10): 2958-89.

April 23 Stated preference

- * Phaneuf & Requate, Ch. 19
- ** Richard T. Carson et al., 2003, "Contingent Valuation and Lost Passive Use: Damages from the Exxon Valdez Oil Spill," *Environmental and Resource Economics* 25: 257-86.
- Hausman, Jerry, 2012, "Contingent Valuation: From Dubious to Hopeless," *JEP* 26(4): 43-56.
- Timothy C. Haab, Matthew G. Interis, Daniel R. Petrolia, and John C. Whitehead, 2013, "From Hopeless to Curious? Thoughts on Hausman's 'Dubious to Hopeless' Critique of Contingent Valuation," *Applied Econ. Perspectives & Policy* 35: 593-612.

- H. Spencer Banzhaf, 2017, "Constructing Markets: Environmental Economics and the Contingent Valuation Controversy," *History of Political Economy* 49(S): 213-39.

April 25 Climate Adaptation

- * Matthew E. Kahn, 2016, "The Climate Change Adaptation Literature," *REEP* 10(1): 166-78.
- ** Alan Berreca et al., 2016, "Adapting to Climate Change: The Remarkable Decline in the US Temperature-Mortality Relationship over the Twentieth Century," *JPE* 124(1): 104-59.

Additional Notes

- The course syllabus provides a general plan for the course; deviations may be necessary.
- Your constructive assessment of this course plays an indispensable role in shaping education at Georgia State. Upon completing the course, please take time to fill out the online course evaluation
- Students who wish to request accommodation for a disability may do so by registering with the Office of Disability Services. Students may only be accommodated upon issuance by the Office of Disability Services of a signed Accommodation Plan and are responsible for providing a copy of that plan to instructors of all classes in which accommodations are sought.