

## **ECON 9320. Environmental and Resource Economics II**

Spring 2021

Prof. Spencer Banzhaf

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Office 435 AYSPS

In-person office hours are officially Tuesdays, 1:30 - 3:00, or immediately after class. I also am available by phone or for zoom meetings on Mondays or at other times, as needed.

### 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*, 3<sup>rd</sup> ed., Resources for the Future, 2014.
- Nick Hanley, Jason F. Shogren, and Ben White, *Environmental Economics in Theory and Practice*, 2<sup>nd</sup> ed., Palgrave-Macmillan, 2007.
- Richard Cornes and Todd Sandler, *The Theory of Externalities, Public Goods, and Club Goods*, 2<sup>nd</sup> 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%
Research proposal/paper	
-meeting	2%
-1-page summary	3%
-3-page version	5%
-rough draft	5%
-final paper	35%
-presentation	5%
Discussant	5%

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 assigned to present a 15 minute overview of the paper, after which we will have a group discussion. On any day, students are expected to come to class prepared and discuss. 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.

Students have two get-out-of-discussion-free days, which you can invoke *before* class begins.

The semester ends with a 20 min. presentation of the research project, followed by a 5 min. commentary from an assigned discussant, followed by 5 min of general discussion.

### Note on writing assignment

The biggest part of your great 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, and if you are not building on your paper for 9325 or other class, 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), or if you are extending work from another class, 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 summarized succinctly in one page; (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:

Jan 25 -- meet with me (in person or zoom) to discuss your topic  
Feb 5 -- 1 p. version of research proposal due by 3 PM (email is fine)  
March 5 -- 3 p. version of research proposal due by 3 PM (email is fine)  
April 2 -- rough draft of paper due to me by 3 PM  
April 23 -- final paper due to me & entire class by 6 PM  
April 27 -- class presentations during final exam time

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

### 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.

## Course Outline

\*\* indicates student-led discussion

\* highest priority reading

◦ optional reading

## Introduction

Jan 12 Introduction to environmental economics

- \* Phaneuf & Requate, Chs. 1-3.
- Krutilla, John V., 1967, "Conservation Reconsidered," *AER* 57(4): 777-89.
- Banzhaf, H. Spencer Banzhaf, "The Environmental Turn in Natural Resource Economics," *Journal of the History of Economic Thought* 41(1): 27-46.

## Externalities and Public Goods

Jan 14 Externalities, non-rivalry, and excludability

- \* Cornes & Sandler Ch. 6.
- Cornes & Sandler Chs. 3-4.
- Medema, Steven G., 2009, *The Hesitant Hand: Taming Self-Interest in the History of Economic Ideas*, Princeton University Press, Chs. 2-3.

Jan 19 Commons and open access goods

- \* Cornes & Sandler §8.4 - 8.5.
- Gordon, H. Scott, 1954, "The Economic Theory of a Common-Property Resource: The Fishery," *JPE* 62(2): 124-42.

Jan 21 Open access goods, cont'd

- \*\* Burlig, Fiona, Louis Preonas, and Matt Woerman, 2020, "Groundwater, Energy, and Crop Choice," U. of Chicago Working Paper: <https://epic.uchicago.edu/wp-content/uploads/2020/12/Groundwater-Energy-And-Crop-Choice.pdf>

Jan 26 Coasean and new institutional approaches

- \* Coase, Ronald H., 1960, "The Problem of Social Cost," *Journal of Law and Economics* 3(1): 1-44.
- \* Ostrom, Elinor, 1990, *Governing the Commons: The Evolution of Institutions for Collective Action*, Cambridge: Cambridge University Press, Chs. 1, 3.
- Demsetz, Harold, 1967, "Toward a Theory of Property Rights," *AER* 57(2): 347-59.

- Jan 28 Coase & NIE cont'd
- \*\* Browne, Oliver, 2019, "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](https://www.dropbox.com/s/m2x3tqrtzf8x85n/Oliver_Browne_JMP.pdf?dl=0)
- Feb 2 Pigouvian-Coasean hybrids
- \*\* Costello, Christopher, and Matthew Kotchen, 2020, "Policy Instrument Choice with Coasean Provision of Public Goods," NBER Working Paper w28130.
- Feb 4 Liability, regulation & enforcement
- \* Phaneuf & Requate, Ch. 10.
- \* Shimshack, Jay P., 2014, "The Economics of Monitoring and Enforcement," *Annual Review of Resource Economics* 6:339-60.
- Feb. 9 Monitoring and enforcement, cont'd
- \*\* Zou, Eric, 2020, "Unwatched Pollution: The Effect of Intermittent Monitoring on Air Quality," *AER*, forthcoming: [http://www.eric-zou.com/s/monitor\\_zou\\_202004.pdf](http://www.eric-zou.com/s/monitor_zou_202004.pdf)
- Feb 11 Environmental federalism and spatial heterogeneity
- \* Segerson, Kathy, 2020, "Local Environmental Policy in a Federal System: An Overview," *Agricultural and Resource Economics Review* 49(2): 196-208.
- \*\* Holland, Stephen P., Erin T. Mansur, Nicholaz Z. Muller, and Andrew J. Yates, 2019, "Distributional Effects of Air Pollution from Electric Vehicle Adoption," *JAERE* 6(S1): S65-S94.
- Feb 16 Environmental federalism and political economy
- \*\* Kahn, Matthew E., 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.

### Natural Resources Dynamics

- Feb 18 Nonrenewable resources
- \* Hanley, Shogren, & White, Chs. 7-8.
- Hotelling, Harold, 1931, "The Economics of Exhaustible Resources," *JPE* 39: 137-75

Feb 23 Nonrenewable Resources, cont'd

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

Feb 25 Renewable resources: Fisheries -- and automobiles?

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

◦ Hall, Jonathan D., 2018, "Pareto improvements from Lexus Lanes: The effects of pricing a portion of the lanes on congested highways," *Journal of Public Economics* 158: 113-25.

March 2 Renewable resources: Forestry

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

### Welfare Economics

March 4 Measures of individual welfare -- consumer surplus

\* Phaneuf & Requate, Ch. 14

\* Review Micro I notes

◦ Slesnick, Daniel, 1998, "Empirical Approaches to the Measurement of Welfare," *JEL* 36(4): 2108-65.

◦ Tunçel, Tuba, and James K. Hammitt, 2014, "A New Meta-Analysis on the WTP/WTA Disparity," *JEEM* 68(1): 175-87.

March 9 Welfare aggregation

\* Review Micro II notes

\* Slesnick 1998 (op cit.), §3

◦ Blackorby, Charles, 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 11 Discounting

\* Phaneuf & Requate, §21.1

\* Gollier, Christian, and James K. Hammitt, 2014, "The Long-Run Discount Rate Controversy," *Annual Review of Resource Economics* 6: 273-95.

\* Li, Qingran, and William A. Pizer, 2019, "The Discount Rate for Public Policy over the Distant Future," NBER Working Paper 25413.

[Spring Break]

March 23 Uncertainty

- \* Freeman, Herriges, & Kling, Ch. 5 (up to p. 151).
- \* Pindyck, Robert S., 2007, "Uncertainty in Environmental Economics," *REEP* 1(1): 45-65.
- Zhao, Jinhua, and Catherine L. Kling, 2009, "Welfare Measures when Agents can Learn: A Unifying Theory," *Economic Journal* 119: 1560-85.
- Mensink, Paul, 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.

Nonmarket Valuation

March 25 Nonmarket valuation: Introduction

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

March 30 The 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 1 Locational choice and hedonic property value models: Introduction and first stage

- \* Phaneuf & Requate, Ch. 18
- \* H. Spencer Banzhaf, 2020, "Difference-in-difference Hedonics," *JPE*, forthcoming <http://hsbanzhaf.gsucreate.org/Papers/Diff-in-Diff%20Hedonics%20JPE%20round4.pdf>
- \* Charles Tiebout, 1956, "A Pure Theory of Local Expenditures," *JPE* 64: 416-24.

April 6 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.
- Banzhaf, H. Spencer, 2020, "Panel Data Hedonics: Rosen's First Stage as a 'Sufficient Statistic,'" *International Economic Review* 61.2: 973-1000.

April 8      Sorting models

- \*\* Richard Freeman, Wenquan Liang, Ran Song, and Christopher Timmins, 2019, "Willingness to Pay for Clean Air in China," *JAERE* 94: 188-216.
- Kuminoff, Nicolai V., V. Kerry Smith, and Christopher Timmins, 2013, "The New Economics of Equilibrium Sorting and Policy Evaluation Using Housing Markets," *JEL* 51(4): 1007-62.

April 13     Averting behavior and health valuation

- \* Phaneuf & Requate, Ch. 20

April 15     Averting behavior and health valuation, cont'd

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

April 20     Stated preference

- \* Phaneuf & Requate, Ch. 19
- \*\* Landry, Craig E., J. Scott Shonkwiler, and John C. Whitehead, 2020, "Economic Values of Coastal Erosion Management: Joint Estimation of Use and Existence Values with recreation demand and contingent valuation data," *JEEM* 103.
- Hausman, Jerry, 2012, "Contingent Valuation: From Dubious to Hopeless," *JEP* 26(4): 43-56.
- Haab, Timothy C., 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.

April 22     Climate Adaptation

- \* Kahn, Matthew E., 2016, "The Climate Change Adaptation Literature," *REEP* 10(1): 166-78.
- \*\* Berreca, Alan, 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.

### Student Presentations

April 27     10:45 - 1:15  
(Scheduled final exam time)