SYLLABUS: Environmental Economics

Professor Ran Song
ran.song@yale-nus.edu.sg

Office Hours TBD

Course Summary

This class will focus on the role of the environment in the theory and practice of economics. It will make use of microeconomic and statistical analysis at the intermediate level and will incorporate real-world examples. The class will be divided into three parts. Part I will cover the ways in which markets fail to efficiently allocate resources in the presence of pollution along with the policies that are used to correct those failures. Part II will focus on the empirical techniques used by economists to put values on environmental commodities. Knowing these values is a precondition for properly applying the policies described in Part I. Part III will focus on topics in natural resource economics and sustainability.

Requirements

The following are required for successful completion of the course: (1) a series of problem sets and short written assignments covering concepts presented in class, (2) a group empirical project in which you will implement a non-market valuation technique,[1] (3) One short papers (10 pages, double spaced, including graphs and references) on environmental topics, (4) a midterm exam, and (5) a final exam. We will also have a number of in-class activities that are intended to keep things from getting boring. These sorts of activities generally work best if everyone comes prepared and participates.

Prerequisites

Required: Econometrics, Microeconomics
Recommended: One course in statistics

[1] For this requirement, students will make use of basic econometric methods. The techniques required to implement these methods will be covered in class.

Grading

Grades will be determined based on the following allocation:

Class Participation	10%
Short Paper	20%
Problem Sets	20%
Midterm Exam	20%
Final Exam	30%

Part I – Market Failures and Pigouvian Policy

(1) Introduction: What is Environmental Economics

- Keohane and Olmstead, Chs. 1 & 4
- Fullerton and Stavins (1998). "How Do Economists Really Think About the Environment?" RFF Discussion Paper 98-29.

(2) Externalities

- Keohane and Olmstead, Ch. 2 (pp.11-27), Ch. 5 (pp.65-76)

(3) Pigouvian Policy

- Keohane and Olmstead, Ch. 8 (pp.129-140, 150-151), Ch. 9 (pp.153-161)
- Downing and White (1986). "Innovation in Pollution Control." Journal of Environmental Economics and Management. 13:18-29.
- M.J. Bradley & Associates LLC (2011). "American Lung Association Energy Policy Development: Electricity Generation Background Document."

(4) Coase Theorem

- Keohane and Olmstead, Ch. 8 (pp.125-129)
- Coase (1960). "The Problem of the Social Cost." *Journal of Law and Economics.*

(5) Uncertainty

- Keohane and Olmstead, pp.143-150

(6) Heterogeneity and Tradable Permits

- Keohane and Olmstead, Ch.9 (pp.162-168, 173-181), Ch.10 (pp.182-190)
- Chan et al. (2012). "The SO2 Allowance Trading System and the Clean Air Act Amendment of 1990: Reflections on Twenty Years of Policy Innovation." RFF Discussion Paper 12-07.

(7) Discounting

- Keohane and Olmstead, Ch. 2 (pp.27-30)
- Stern, N. "Stern Review: The Economics of Climate Change." *Executive Summary*.
- Nordhaus, W. "A Question of Balance: Weighing the Options on Global Warming Policies."
- Nordhaus, W. "The *Stern Review* on the Economics of Climate Change."

(8) International Agreements

- "Climate change is a global injustice. A new study shows why." Vox (9/26/18)

(9) Decentralized Approaches (Information, Voluntary Compliance, Liability)

- Hamilton (1995), "Pollution as News: Media and Stock Market Reactions to TRI Data." *Journal of Environmental Economics and Management*. 28:98-113.
- Arora and Cason (1995). "An Experiment in Voluntary Environmental Regulation: Participation in EPA's 33/50 Program." *Journal of Environmental Economics and Management*. 28:271-286.
- Richardson. "US Oil Spill Law." *RFF Policy Backgrounder*.

(10) Free-Lunches: The Double Dividend and Porter Hypotheses

- Keohane and Olmstead, Ch.8 (pp.150-151)
- Goulder and Parry. "Green Tax Reform and the Double Dividend." *RFF Newsletter*.
- Porter and van der Linde (1995). "Toward a New Conception of the Environment-Competitiveness Relationship." *Journal of Economic Perspectives*. 9(4):97-118.

(11) Tragedy of the Commons

- Keohane and Olmstead, Ch.5 (pp.76-82)
- Hardin (1968). "The Tragedy of the Commons." *Science*. 126: 1243-1248.
- "Protecting Our National Parks: New Entrance Fees Can Help," Resources for the Future, *Resources*, No.193 (2016)

(12) Climate Change

- Schapiro. "Conning the Climate." *Harper's Magazine* (2/2010). pp.31-39.
- Mendelsohn, Nordhaus, and Shaw (1994). "The Impact of Global Warming on Agriculture: A Ricardian Analysis." *American Economic Review*. 84(4):753-771.
- Adams et al. (1990). "Global Climate Change and US Agriculture." *Nature*. 345:219-224.

Part II – Non-Market Valuation

(13) Cost-Benefit Analysis and Sources of Value

- Keohane and Olmstead, Ch.3
- Hahn and Dudley (2007). "How Well Does the US Government Do Benefit-Cost Analysis?" *Review of Environmental Economics and Policy*. 1(2):192-211.
- Krutilla (1967). "Conservation Reconsidered." *American Economic Review*. 57(4):777-786.
- Heinzerling, L. "Lisa Heinzerling Responds to Richard Revesz on Cost-Benefit Analysis." Available at: http://grist.org/article/cost-benefit-environmentalism-an-oxymoron/.
- Arrow et al. (1996). "Is There a Role for Benefit-Cost Analysis in Environmental, Health, and Safety Regulation?" *Science*. Vol. 272, pp.221-222.

(14) Hedonics

- Kolstad, Ch.16 (pp.323-331)
- Muehlenbachs, Spiller, and Timmins (2012). "Shale Gas Development and Property Values: Differences Across Drinking Water Sources." NBER Working Paper No. 18390.
- ***In-Class Hedonics Exercise***

(15) Stated Preference

- Kolstad 18 (pp.355-364)
- "Report of the NOAA Panel on Contingent Valuation." *Federal Register*. 58(10):4601-4614.
- Carson et al. (2003). "Contingent Valuation and Lost Passive Use: Damages from the Exxon Valdez Oil Spill." *Environmental and Resource Economics*. 25: 257-286.
- Banzhaf et al. (2005). "Forever Wild, But Do We Care? How New Yorkers Value Natural Resource Improvements." Resources for the Future. *Resources*. pp. 20-23.

Part III – Resources and Sustainable Development

(16) Sustainable Development

- Keohane and Olmstead, Ch.7 (pp.109-110), Ch.11
- Solow (1992). "An Almost Practical Step Toward Sustainability."

(17) Exhaustible Resources

- Keohane and Olmstead, Ch.6

(18) Renewable Resources: Elephants and Ivory

- Keohane and Olmstead, Ch.7 (pp.110-124)
- McPherson and Nieswiadomy (2000). "African Elephants: The Effect of Property Rights and Political Stability." *Contemporary Economic Policy*. 18(1):14-26.
- Kremer and Morcom (2000). "Elephants." American Economic Review. 90(1):212-234.
- De Alessi (2004). "An Ivory Tower Take on the Ivory Trade." Econ Journal Watch. 1(1):47-54.

(19) Growth and the Environment

- Dasgupta, Laplante, Wang and Wheeler (2002). "Confronting the Environmental Kuznets Curve." *Journal of Economic Perspectives*. 16(1):147-168.
- Grossman and Krueger (1995). "Economic Growth and the Environment." *Quarterly Journal of Economics*. 110(2):353-377.
- Levinson and Taylor (2006). "Unmasking the Pollution Haven Effect."
- Wagner and Timmins (2009). "Agglomeration Effects in Foreign Direct Investment and the Pollution Haven Hypothesis." *Environmental and Resource Economics*. 43:231-256.

Mid-term (Feb 28)
Final Exam (TBD by Registrar)