

## **Syllabus: Economics 266 – Natural Resource Economics (Spring 2004)**

Instructor: Wolfram Schlenker  
Office: Economics, Room 224  
Office Hours: Tuesdays 4-5:30pm  
Email: [wschlenker@ucsd.edu](mailto:wschlenker@ucsd.edu)  
Class Web Page: <http://econ.ucsd.edu/~wschlenk/econ266>  
Lecture: Tuesday, Thursday 2pm-3.20pm (Economics, Room 300)

### **COURSE DESCRIPTION:**

The goal of this course is to introduce you to the basic concepts of natural resource and environmental economics (each in about five weeks). It should hence be seen as a survey class that introduces the basic ideas of the field. The reading list includes several overview articles that will direct you in case you'd like to know more about a particular subject or you can come talk to me. Since the environment resource group (meets every Monday, and you should attempt to participate as well) focuses primarily on the empirical implementation of these issues, I decided to focus more on the history of the discipline, and the theoretical foundations.

Richard Carson agreed to give one guest lecture about contingent valuation. His book about the topic is the most cited one in all of environmental economics, and he'll be much more qualified than me to present it.

### **PREREQUISITES:**

Background in micro-economics and optimal control theory. Furthermore, you should know the basic commands in MATLAB (for some of the problem sets, but they are easy to learn).

### **READINGS:**

All readings are available on e-reserve.

### **GRADING:**

There will be a 3-hours final (60% of your grade) and you are required to write a research proposal (~10 pages) that either addresses a theoretical problem or identifies a data set and an estimation strategy to answer an empirical question (40% of your grade). A first draft of the paper is due on May 20<sup>th</sup>, while the final version is due June 10<sup>th</sup>.

### **PROBLEM SETS:**

There will be four problem sets for you to practice the material. The problem sets are a chance for you to familiarize yourself with the techniques you learn in class, but won't influence your grade.



Thursday April 1<sup>st</sup>: Exhaustible Resources

Conrad, Jon M., and Colin W. Clark, "Natural Resource Scarcity," *Quarterly Journal of Economics*, 106(1), 1991, pp. 123-140.

Withagen, Cees, "Untested Hypotheses in Non-Renewable Resource Economics," *Environmental and Resource Economics*, 11(3-4), 1998, pp. 623-634.

Tuesday April 13<sup>th</sup>: Some Extensions to the Standard Exhaustible Resource Model

Hnyilicza, Esteban, and Pindyck, Robert M., "Pricing Policies for a two-part Exhaustible Resource Cartel," *European Economic Review*, 8(1), 1976, pp. 139-154.

Pindyck, Robert S., "The Optimal Exploration and Production of Nonrenewable Resources," *Journal of Political Economy*, 86(5), 1978, pp. 841-861.

Slade, Margaret E., "Trends in Natural-Resource Commodity Prices: An Analysis of the Time Domain," *Journal of Environmental Economics and Management*, 9(1), 1982, pp. 122-137.

Arrow, Kenneth J., and Sheldon Chang, "Optimal Pricing, Use, and Exploration of Uncertain Natural Resource Stocks", *Journal of Environmental Economics and Management*, 9(1), 1991, pp. 1-10.



## PART II: ENVIRONMENTAL ECONOMICS

Tuesday May 4<sup>th</sup>: Introduction to Environmental Economics. What are Externalities?

Cropper, Maureen L., and William E. Oates, "Environmental Economics: A Survey," *Journal of Economic Literature*, 30(2), 1992, 675-740.

Pigou, Arthur C., *Economics of Welfare* (4<sup>th</sup> eds), St. Martin's Press, 1960.

Viner, Jacob, "Cost Curves and Supply Curves," *Zeitschrift für Nationalökonomie*, 3, 1931, pp. 23-46.

Maede, James E., "External Economies and Diseconomies in a Competitive Situation," *Economic Journal*, 62(245), 1952, 54-67.

Scitovsky, Tibor, "Two Concepts of External Economies," *Journal of Political Economy*, 62(2), 1954, pp. 143-151.

Tresch, Richard W., *Public Finance: A Normative Theory* (2<sup>nd</sup> eds), Academic Press, 2002, Chapters 5-8.

Thursday May 6<sup>th</sup>: Externalities and the Pigouvian Solution

Holtermann, Sally, "Alternative Tax Systems to Correct for Externalities, and the Efficiency of Paying Compensation," *Economica*, 43(169), 1977, pp. 1-16.

Young, Leslie, "Alternative Tax Systems to Correct for Externalities and the Technical Options of Firms," *Economica*, 44(176), 1977, pp. 415-420.

Barnett, A. H., "The Pigouvian Tax Rule Under Monopoly," *American Economic Review*, 70(5), 1980, pp. 1037-1041.

Tuesday May 11<sup>th</sup>: Complications with Pigouvian Solutions

Carlton, Dennis W., and Glenn C. Loury "The Limitations of Pigouvian Taxes as a Long-Run Remedy for Externalities," *Quarterly Journal of Economics*, 95(3), 1980, pp. 559-566.

Helfand, Gloria E., and Rubin Jonathan, "Spreading versus Concentrating Damages: Environmental Policy in the Presence of Nonconvexities," *Journal of Environmental Economics and Management* 27(1), 1994, pp. 84-91.

Thursday May 13<sup>th</sup>: Pigouvian Solutions in a General Equilibrium Context

Braulke, Michael, "On the Comparative Statics of a Competitive Industry," *American Economic Review*, 77(3), 1987, pp. 479-485.

Brannlund, R. and B. Kristrom, "Welfare Measurement in Single and Multimarket Models, Theory and Application," *American Journal of Agricultural Economics*, 78(), 1996, pp. 157-165.

Diamond, Peter A., and James A. Mirrlees, "Aggregate Production with Consumption Externalities," *Quarterly Journal of Economics*, 87(1), 1973, pp. 1-24.

Sandmo, Agnor, "Anomaly and Stability in the Theory of Externalities," *Quarterly Journal of Economics*, 94(4), 1980, pp. 799-807.



Tuesday May 18<sup>th</sup>: Double-Dividend Controversy

Bovenberg, A. Lans, and Lawrence H. Goulder, "Optimal Environmental Taxation in the Presence of Other Taxes: General-Equilibrium Analyses," *American Economic Review*, 86(4), 1996, pp. 985-1000.

Goulder, Lawrence H., and Roberton C. Williams III., "The Substantial Bias from Ignoring General Equilibrium Effects in Estimating Excess Burden, and a Practical Solution," *Journal of Political Economy*, 111(4), 2003, pp. 898-927.

Thursday May 20<sup>th</sup>: Quantity vs. Price Regulation

Weitzman, Martin L., "Prices vs. Quantity," *Review of Economic Studies*, 41(4), 1974, pp. 477-491.

Laffont, Jean Jacques, "More on Prices vs. Quantities," *Review of Economic Studies*, 44(1), 1977, pp. 177-182.

Ireland, N. J., "Ideal Prices vs. Prices vs. Quantities," *Review of Economic Studies*, 44(1), 1977, pp. 183-186.

Roberts, Marc J., and Michael Spence, "Effluent Charges and Licenses under Uncertainty," *Journal of Public Economics*, 5(3-4), 1976, pp. 193-208.

Tuesday May 25<sup>th</sup>: More about Quantity vs. Price Regulation

Lewis, Tracy R., "Protecting the Environment when Costs and Benefits are Privately Known," *Rand Journal of Economics*, 27(4), 1996, pp. 819-847.

Brozovic, Nicholas, David L. Sunding, and David Zilberman, "Prices versus Quantities Reconsidered," *Mimeo*, 2002.

Cason, Timothy N., "An Experimental Investigation of the Seller Incentives in the EPA's Emission Trading Auction," *American Economic Review*, 85(4), 1995, pp. 905-922.

Johnson, Scott-Lee, and David M. Pkelney, "Economic Assessment of the Regional Clean Air Incentives Market: A New Emissions Trading Program for Los Angeles," *Land Economics*, 72(3), 1996, pp. 277-297.

Thursday May 27<sup>th</sup>: Coase and Bargaining

Coase, Ronald H., "The Problem of Social Cost," *Journal of Law and Economics*, 3(1), 1960, pp. 1-44.

Samuelson, William, "A comment on the Coase Theorem," in A. Roth (ed.), *Game-Theoretic Models of Bargaining*, Cambridge University Press, 1985, pp. 321-339.

Hoffman, Elizabeth, and Matthew L. Spitzer, "The Coase Theorem: Some Experimental Tests," *Journal of Law & Economics*, 25(1), 1982, pp. 73-98.

Tuesday June 1<sup>st</sup>: Coase in Practice

Smith, V. Kery, William H. Desvousges, and John W. Payne, "Do Risk Information Programs Promote Mitigation Behavior?" *Journal of Risk and Uncertainty*, 10(3), 1995, pp. 203-221.

Konar, Shameek, and Mark A. Cohen, "Information As Regulation: The Effect of Community Right to Know Laws on Toxic Emissions," *Journal of Environmental Economics and Management* 32(1), 1997, pp. 109-124.

Wolverton, Ann, "Does Race Matter? An Examination of a Plant's Location Decision", *Mimeo* 2002.

Thursday June 3<sup>rd</sup>: Wrap-up and Student Papers.