

**Environmental Economics and Policy 145 Syllabus  
Health and Environmental Economic Policy**

**Department of Agricultural and Resource Economics  
University of California, Berkeley  
Fall 2011**

**Lectures: MWF 3:00–4:00 pm, 160 Dwinelle  
Section: N/A**

Course Website: <http://bspace.berkeley.edu/>

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### **Course Description**

This course introduces students to key issues and findings in the valuation and production of health. It combines theoretical and empirical techniques from health economics and environmental economics. At their cores, both disciplines deal with market failures – in particular, public goods, externalities, and moral hazard. The first part of the course provides an introduction to the theoretical framework used to analyze and value the provision of health and environmental goods. The second part focuses on policy-relevant empirical measurements of the valuation of health and safety – how much is society willing to pay for improvements in health and safety? The remaining two parts of the course explore the different ways in which we can produce health and safety. What types of investments work and what types do not? Which investments are cost effective? In these latter two parts, we first explore what we know about the environmental and social production of health, and then examine whether medical care is a cost effective means of producing health.

The first goal of the course is to encourage students to consider the tradeoffs made when investing in the provision of health and environmental goods and to understand how economics can provide a framework to compare these choices and guide policy. The second goal is to familiarize students with the empirical methods that researchers use to estimate the effects of health and environmental policies. Most students will not go on to do graduate work in this field, but upon completion of the course they should be able to analyze a study described in the newspaper and ascertain its credibility.

### **Prerequisites**

Students should be familiar with intermediate micro economic theory and basic probability and statistics. The former can be satisfied with EEP 100 or 101 or ECON 100A or 101A (or equivalent). The latter can be satisfied with STAT 20, 21, 25, or 131A or EEP 118.

## **Assignments and Grading**

I will assign approximately 6 problem sets during the course of the semester. On each problem set, a random sample of the questions will be ungraded. Completing the problem sets will also be very helpful for the midterm and the final examination. Overall grades will be based on performance on graded questions in the problem sets (20%), participation (10%), the midterm grade (25%), and the final exam grade (45%).

## **Textbooks and Readings**

There is no single text for the course, but there are readings that pertain to each section of the course. Links to these articles are included below; the articles should be accessible to anyone on the UC Berkeley network (either physically or via VPN). Starred readings are *mandatory* – one or more exam questions may use material from the starred readings.

## **Course Outline**

### **SECTION 1 – THEORETICAL TOOLS**

#### **Weeks 1 and 2 – Review of Market Failures**

Externalities (Instructor Notes)

Public Goods (Instructor Notes)

Benefit-Cost Analysis (Instructor Notes)

### **SECTION 2 – THE VALUATION OF HEALTH**

#### **Weeks 3 and 4 – Statistical Value of Life and Health**

How do we value improvements in safety or health?

Brannon, Ike. “[What is a Life Worth?](#)” *Regulation*, 2007, 27, 60-63.

“[How to Value Life? EPA Devalues Its Estimate.](#)” *Associated Press*, 10 July 2008.

Basic empirical tools.

Randomized trials versus observational data: the role of omitted variables bias (Instructor Notes)

Simple linear regression (Instructor Notes)

Simple differences-in-differences (Instructor Notes)

Empirical estimates of the statistical value of life.

Viscusi, Kip, and Joseph Aldy. "[The Value of a Statistical Life: A Critical Review of Market Estimates Throughout the World.](#)" *The Journal of Risk and Uncertainty*, 2003, 27, 5-76.

Ashenfelter, Orley, and Michael Greenstone. "[Using Mandated Speed Limits to Measure the Value of a Statistical Life.](#)" *Journal of Political Economy*, 2004, 112(1), S226-67.

\*Davis, Lucas. "[The Effect of Health Risk on Housing Values: Evidence From a Cancer Cluster.](#)" *American Economic Review*, 2004, 94, 1693-1704.

### **SECTION 3 – ENVIRONMENTAL AND SOCIAL PRODUCTION OF HEALTH**

#### **Week 5 – The Health Production Function**

Why should we care about costs?

Tengs, Tammy, Miriam Adams, Joseph Pliskin, Dana Gelb Safran, Joanna Siegel, Milton Weinstein, and John Graham. "[Five-Hundred Life-Saving Interventions and Their Cost-Effectiveness.](#)" *Risk Analysis*, 1995, 15, 369-390.

#### **Weeks 5 and 6 – Air Pollution**

Advanced empirical tools.

Instrumental variables (Instructor Notes)

The effects of air pollution on infants.

Chay, Kenneth, and Michael Greenstone. "[The Impact of Air Pollution on Infant Mortality: Evidence from Geographic Variation in Pollution Shocks Induced by a Recession.](#)" *The Quarterly Journal of Economics*, 2003, 118, 1121-1167.

The effects of air pollution on adults.

\*Ransom, Michael, and C. Arden Pope. "[External Health Costs of a Steel Mill.](#)" *Contemporary Economic Policy*, 1995, 13, 86-97.

Moretti, Enrico and Matthew Neidell. "[Pollution, Health, and Avoidance Behavior: Evidence from the Ports of Los Angeles.](#)" *Journal of Human Resources*, 2011, 46, 154–75.

Dockery, Douglas, C. Arden Pope, Xiping Xu, John Spengler, James Ware, Martha Fay, Benjamin Ferris, and Frank Speizer. "[An Association between Air Pollution and Mortality in Six U.S. Cities.](#)" *New England Journal of Medicine*, 1993, 329, 1753-1759.

### **Week 7 – Climate Change**

The effects of short-term climate fluctuations on mortality.

Deschenes, Olivier, and Enrico Moretti. "[Extreme Weather Events, Mortality and Migration.](#)" *Review of Economics and Statistics*, 2009, 91, 659-681.

### **Week 8 – The Built Environment**

The effects of fast-food on obesity.

\*Anderson, Michael and David Matsa. "[Restaurants, Regulation, and the Supersizing of America.](#)" *Regulation*, 2010, 33(3), 40–47. (Based on the full length article: "[Are Restaurants Really Supersizing America?](#)" *American Economic Journal: Applied Economics*, 2011, 3, 152–88.)

Bollinger, Bryan, Phillip Leslie, and Alan Sorensen. "[Calorie Posting in Chain Restaurants.](#)" *American Economic Journal: Economic Policy*, 2011, 3, 91–128.

### **Week 9 – The Social Environment**

The effects of social competition and status on health.

\*Shively, Carol, and Thomas Clarkson. "[Social Status and Coronary Artery Atherosclerosis in Female Monkeys.](#)" *Arteriosclerosis and Thrombosis*, 1994, 14, 721–726.

Anderson, Michael, and Michael Marmot. "[The Effects of Social Status on Heart Disease: Evidence from Whitehall.](#)" *Economic Journal*, accepted.

Becker, David, Ken Chay, and Shailender Swaminathan. "Mortality and the Baseball Hall of Fame: An Investigation into the Role of Status in Life Expectancy." iHEA 2007 6th World Congress: Explorations in Health Economics Paper, 2007.

## **SECTION 4 – MEDICAL PRODUCTION OF HEALTH**

## Weeks 10 and 11 – Does Medical Spending Produce Health?

The effects of health care expenditures on health.

\*Cutler, David and Dan Ly. “[The \(Paper\)Work of Medicine: Understanding International Medical Costs.](#)” *Journal of Economic Perspectives*, 2011, 25, 3–25.

\*Harris, Gardiner. “[Wearing Off: Schering-Plough Faces A Future With Coffers Unfortified by Claritin – As Pill Goes Over-the-Counter And Generic, Firm Woos Users to Successor Drug.](#)” *The Wall Street Journal*, 22 March 2002.

\*Carroll, Aaron. “[Health care from the heart – my response.](#)” 26 January 2011.

\*Perloth, D., D. Goldman, and A. Garber. “[The Potential Impact of Comparative Effectiveness Research on U.S. Health Care Expenditures.](#)” *Demography*, 2010, 47, S173–S190.

Brook, Robert, John Ware, William Rogers, Emmett Keeler, Allyson Davies, Cathy Sherbourne, George Goldberg, Kathleen Lohr, Patricia Camp, and Joseph Newhouse. [The Effect of Coinsurance on the Health of Adults: Results from the Rand Health Insurance Experiment](#), 1984, Chapters 1-4.

Wennberg, John, Elliot Fisher, and Jonathan Skinner. “[Geography and the Debate over Medicare Reform.](#)” *Health Affairs*, 2002, web exclusive.

Cutler, David and Elizabeth Richardson. “[The Value of Health: 1970–1990](#)” *The American Economic Review*, 1998, 88, 97-100.

Optional Readings:

Hanratty, M. “[Canadian National Health Insurance and Infant Health.](#)” *The American Economic Review*, 1996, 86, 276-84.

Lurie, N., N. Ward, M. Shapiro, and Brook R. “Termination From Medi-Cal: Does It Affect Health?” *New England Journal of Medicine*, 1984, 311, 480-4.

## Week 12 – Market Failure in the Provision of Healthcare

Adverse selection in insurance markets.

\*Akerlof, George. “[The Market for ‘Lemons’: Quality Uncertainty and the Market Mechanism.](#)” *The Quarterly Journal of Economics*, 1970, 84, 488-500.

\*Dubinsky, Donna. "[Money Won't Buy You Health Insurance.](#)" *The New York Times*, 19 February 2011.

Moral hazard, externalities, and other market failures in healthcare. (Instructor Notes)