Introduction to Environmental Economics

Dr. David Lehrer
3 weekly hours, 3 academic credits

Course description

This course will survey economic thinking on environmental issues. A wide range of topics will be considered, including economic approaches to pollution control; the extent to which environmental regulations impede production of conventional goods and services; water markets; valuation of environmental resources; natural resource damage assessment; climate change; loss of biodiversity; circular economies; and sustainability. The course will seek to introduce students to the insights that economics can provide as well as make them aware of the pitfalls of economic approaches.

Grade components:

Component	
Attendance & Participation	15%
Mid-Term Exam	25%
Project	25%
Final Exam	35%

Course project: Students analyze a current environmental issue using economic tools learned in class. The instructions about the format of the course project will be distributed in the 3rd week of classes.

Exercises will be assigned throughout the semester and will be reviewed in class.

Exams: A mid-term exam will be given and include all material covered in class until the exam. A final exam will be given and include material covered in class and assigned readings for the whole course.

Course schedule and reading:

Class No.	Subject	Reading Assignment for class
1	Introduction and Overview of Class. The Market system: Demand, Supply and Efficiency. *Students in class, David on Zoom*	F&F ch. 1, 2, T&L ch.1 Fullerton & Stavins (1998)
2	Demand, Supply and Efficiency continued	F&F ch.3, 4, T&L ch. 2
3	Market Failures: Public Goods and Externalities	F&F ch. 3, 4, T&L ch. 2
4	Common Property Resources, Coase theorem.	B&C ch.3, F&F ch. 6-8, T&L ch. 13 Hardin (1968)
5	Cost Effectiveness and Cost Benefit Analysis,	B&C ch. 4, F&F ch. 6-8, T&L ch. 3 Arrow et al. (1996), Palmini (1999) Kotchen & Burger (2007), Alberini et al. (1994), Brennen (1995), Sunstein (2004)
	Mid-Term Exam Review	
6	Mid-Term Exam	
	Discounting and Risk Analysis	
7	Valuation – Revealed preferences and Stated Preferences	B&C ch. 5, F&F ch. 6-8, T&L ch. 4 Maille & Mendelshon (1993), Becker et al. (2005), Loomis (2006), Carson (2000), Whitehead (2000), Venkatachalam (2004)
8	Environmental Regulations: Command and Control, Taxes and Permits	F&F ch. 9-13, T&L ch.14, 15, 17
9	The Economic Impact of Climate Change	Wade (2016), Castells-Quintana (2018), Flavelle (2021), Marchant (2021), Marchant (2022), Stern (2022)
10	The Economics of Biodiversity *Students in class, David on Zoom*	Lehrer (2021)
	Circular Economy and Sustainability	Morselleto (2021), Grafstrom& Aasma S (2021), Mies & Gold (2021) Corvellec (2022)
12	Review for Exam	
13	Final Exam	

Text Books

Becker N and Choresh Y (2006) Economic aspects of Marine Protected Areas. UNEP publishing

Field BC and MK Field (2017) Environmental Economics. MacGraw Hill Publishing

Tietenberg T and Lewis L (2012) Environmental and Natural Resource Economics, 9th Ed., Harper-Collins

Articles

Alberini A, Edelstein D, McConnell VD (1994) Will Speeding the Retirement of Old Cars Improve Air Quality? Resources 115:89-95

Arrow KJ, Cropper ML, Eads GC, Hahn RW, Lave LV, Noll RG, Portney PR, Russell M, Scmalensee R, Smith VK and Stavins RN (1996) Is There a Role for Benefit-Cost Analysis in Environmental, Health, and Safety Regulation? Science 272:221-222

Becker N, Inbar M, Bahat O, Choresh Y, Ben-Noon G, Yaffe O (2005) Estimating the Economic Value of Viewing Griffon Vultures Gyps fulvus: a Travel Cost Model Study at Gamla Nature Reserve, Israel. Oryx 39(4):429-434

Brennan TJ (1995) Discounting the Future, Economics and Ethics. Resources 120:35-41

Carson RT, Flores NE, Meade NF (2000) Contingent Valuation: Controversies and Evidence. University of California, San Diego, Department of Economics, Discussion paper 96-36R

Castells-Quintana D, del Pilar Lopez-Uribe M, McDermott TKJ. (2018) Adaptation to climate change: A review through a development economics lens. World Development 104:183–196.

Corvellec, H, Stowell, AF, Johansson, N (2022) Critiques of the circular economy. Journal of Industrial Ecology. 26:421–432.

Ferreira da Cunha R, Missemer A (2020) The Hotelling rule in non-renewable resource economics: A reassessment. Canadian Journal of Economics 53(2): pp. 800–820.

Flavelle, C (2021) Climate Change Could Cut World Economy by $23 Trillion in 2050, Insurance Giant Warns, NY Times https://www.nytimes.com/2021/04/22/climate/climate-change-economy.html accessed 27/07/22

Franco, MPV, Gaspard, M, and Mueller T. (2019) Time discounting in Harold Hotelling's approach to natural resource economics: The unsolved ethical question. Ecological Economics 163: 52–60.

Fullerton, D and Stavins, R (1998) How Economists See the Environment. Reprinted from Nature 395:6701

Grafstrom, J and Aasma S (2021) Breaking circular economy barriers. Journal of Cleaner Production 292:126002.

Hardin, G (1968) The Tragedy of the Commons. Reprinted from Science 162:1243-1248

Kotchen MJ and Burger NE (2007) Should We Drill in the Arctic National Wildlife Refuge? An Economic Perspective. Energy Policy 39:4720-4729

LibreTexts 36.1: Introduction to Natural Resource Economics

Loomis J (2005) Economic Values of River Restoration. Colorado Water, Colorado State University, Dec 2005: 9-11

Maille P and Mendelsohn R (1993) Valuing Ecotourism in Madagascar. Journal of Environmental Management 38:213-218

Marchant, N (2021) Future Of The Environment: This is how climate change could impact the global economy. World Economic Forum. https://www.weforum.org/agenda/2021/06/impact-climate-change-global-gdp/ accessed 27/07/2022.

Mies, A and Gold, S. (2021) Mapping the social dimension of the circular economy. Journal of Cleaner Production 321:128960.

Morseletto, P. (2020) Targets for a circular economy. Resources, Conservation & Recycling 153:104553.

Palmini D (1999) Uncertainty, Risk Aversion, and the Game Theoretic Foundation of the Safe Minimum Standard: a Reassessment. Ecological Economics 29:463-472

Stern, N, Stiglitz J and Taylor C. (2022). The economics of immense risk, urgent action and radical change: towards new approaches to the economics of climate change. Journal of Economic Methodology. DOI:10.1080/1350178X.2022.2040740.

Sustein CR (2004) Cost-Benefit Analysis and the Environment. John M. Olin Law& Economics Working Paper No. 227 2D Series, The Law School of the University of Chicago

Venkatachalam L (2004) The Contingent Valuation Method: A Review. Environmental Impact Assessment Review 24:89-124

Wade, K & Jennings, M (c. 2016) The impact of climate change on the global economy. Schroders Talking Points. Schroder Investment Management Ltd. https://prod.schroders.com/globalassets/digital/insights/pdfs/the-impact-of-climate-change-on-the-global-economy.pdf accessed 27/07/2022.

Whitehead JC, Haab TC and Huang JC (2000) Measuring Recreation Benefits of Quality Improvements with Revealed and Stated Behavior Data. Resource and Energy Economics 22:339-354