



Introduction to Environmental Economics

Spring 2024

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. The project will be due on May 26th.

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.	Date	Subject	Reading Assignment for class
1	13/02	Introduction and Overview of Class. The Market system: Demand, Supply and Efficiency. <i>Students in class, David on Zoom</i>	F&F ch. 1, 2, T&L ch.1 Fullerton & Stavins (1998)
2	20/02	Demand, Supply and Efficiency continued	F&F ch.3, 4, T&L ch. 2
3	27/02	Market Failures: Public Goods and Externalities	F&F ch. 3, 4, T&L ch. 2
4	12/03	Common Property Resources, Coase theorem.	B&C ch.3, F&F ch. 6-8, T&L ch. 13 Hardin (1968)
5	19/03	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	26/03	Mid-Term Exam	
		Discounting and Risk Analysis	
7	02/04	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	30/04	Environmental Regulations: Command and Control, Taxes and Permits	F&F ch. 9-13, T&L ch.14, 15, 17
9	05/05	The Economic Impact of Climate Change	Wade (2016), Castells-Quintana (2018), Flavelle (2021), Marchant (2021), Marchant (2022), Stern (2022)
10	21/05	The Economics of Biodiversity <i>Students in class, David on Zoom</i>	Lehrer (2021)
		Circular Economy and Sustainability	Morselleto (2021), Grafstrom & Aasma S (2021), Mies & Gold (2021) Corvellec (2022)
12	26/05	Review for Exam	
13	TBA	Final Exam	

Text Books

- Becker N and Chores 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, Chores 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-Urbe 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. Schrodgers 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