

Course title: Environmental Economics (IE 510)

Number of credits: 4

Number of hours: lectures-tutorial: 45 hours (approximately)

Faculty: Sangeeta Bansal

Course outline:

This one semester optional course is designed to introduce students to key contemporary issues in environmental economics. The course is founded in economic theory and covers methodologies that are applied to analyse environmental problems and policies. It will discuss economic factors that give rise to environmental problems and economic incentives that can be used to mitigate these problems. Applications of various approaches to real world environmental problems, technology choices and policies will be presented in class to illustrate key concepts. It will also introduce students to non-market valuation techniques. The course comprises of lectures, plus 1 term paper to be submitted by students. Students are also expected to search for currently debated environmental problems and policies in India and other countries that would trigger discussions in the class.

Evaluation procedure:

- 1 Term paper: 20%
- Mid semester examination: 40%
- End semester examination: 40%

Course Outline and Reading List

I The Environment and Economics

Interaction between economy and environment

Kolstad: Chs 1 and 2

Nicholas Stern, "Stern Review of the Economics of Climate Change" (30 Oct 2006)

Fullerton and Stavins "How economists see the environment" Nature, (1998).

II Genesis of Environmental Problems

Market Failures

Public Goods and Externalities

Baumol & Oates Chs 2,3, 6, 14.

Nordhaus, "The problem of global public goods" working paper 2005.

Handbook Ch 13

III Regulating the Environment: Instrument Choice

Command and Control methods: Standards, Technology Mandates

Market based incentives: Taxes and Tradable Permits

Property Rights, Liability Rules

Incentives and Market Structure

Coase Theorem

R. H. Coase, "The problem of Social Cost," JLE, 3, 1- 44 (1960) Robert Hahn, Economic Prescriptions for Environmental Problems", J. Economic Perspectives (1989).

Hanley, Shogren and White, ch 4

Buchanan AER 1969, 174 – 177

Baumol and Oates

Jeroen C.J.M. van den Bergh, Handbook of Environmental and Resource Economics, ch 19.

IV Role of Information in environmental decision making and regulation

Asymmetric information

Uncertainty

Public Disclosure

Moral Hazard and Enforcement

Eco-labelling

Weitzman, “Prices vs Quantities”, RES, 41 (4) 477 – 491 (1974).

Roberts, M.J. and M. Spence, 1976, Effluent charges and licences under uncertainty, *Journal of Public Economics* 5, 193-208.

Kwerel, To tell the truth: Imperfect information and optimal pollution control, *Review of Economic Studies*, 1977, 44 (3), 595 – 560.

Tietenberg and Wheeler, Empowering the community: Information strategies for pollution control

Afsah, Laplante, Wheeler, Regulation in the information age: Indonesia’s public information program for environmental management, The World Bank, Development Research Group, Washington DC, March, 1997.

Garcia, Jorge, H., Thomas Sterner and Shakeb Afsah, 2007. Public disclosure of industrial pollution: The PRPOER approach for Indonesia? *Environment and Development Economics* 12 :739-56.

V Private Provision of Environmental Goods

Voluntary approaches to environmental regulation

Green markets

Corporate social responsibility

Segerson and Miceli “Voluntary environmental agreements: Good or bad news for environmental protection?” JEEM, 36: 109 – 30 (1998).

Maxwell et al, “Self regulation and social welfare: The political economy of corporate environmentalism”, JLE, 43: 583-617 (2000).

Bansal Sangeeta and S. Gangopadhyay, 2003, Tax-Subsidy Policies in the Presence of Environmentally Aware Consumers’ *Journal of Environmental Economics and Management* 45(2S), 333-355.

Lutz, Lyon, Maxwell, 2000. Quality leadership when regulatory standards are forthcoming. *Journal of Industrial Economics* XLViii (3), 331-348.

Lyon and Maxwell, Voluntary approaches to environmental regulation: A survey

Teisl, Roe and Hicks, Can eco-labeling tune a market? Evidence from dolphin-safe labelling, *Journal of Environmental Economics and Management* 43, 339 – 359 (2002)

Lyon, T. P. and John, W. M. (2008), ‘Corporate Social Responsibility and the Environment: A Theoretical Perspective,’ *Review of Environmental Economics and Policy*, 2(2), 240-26.

VI Innovation and Technical Change

Incentives for technical change

Porter's Hypothesis

Requate and Unold, 2003, Environmental policy incentives to adopt advanced abatement technology: Will the true ranking please stand up? *European Economic Review*.

Porter and Linde, JEP, 9: 97 – 118 (1995).

Downing, P.G. and L. J. White, 1986, 'Innovation in Pollution Control,' *Journal of Environmental Economics and Management* 13, 18-29.

Milliman S.R. and R. Prince, 1989, 'Firm incentives to promote technological change in pollution control', *Journal of Environmental Economics and Management* 17, 247-265.

Porter and Linde, JEP, 9: 97 – 118 (1995).

Bansal Sangeeta and S. Gangopadhyay, 2005, Incentives for Technological Development: BAT is Bad, *Environmental and Resource Economics* 30, 345-367.

Jaffe and Stavins, "Dynamic incentives of environmental regulations: The effect of alternative policy instruments on technology diffusion", *JEEM*, 29: S-43-63 (1995).

VI Global Environmental Issues

Transboundary environmental problems

Global Commons

Environmental conflict, bargaining and cooperation

Design of international agreements

Overview of Climate Change: Causes; possible effects; costs of mitigating green house gas emissions; adaptation measures

Mitigating emissions related to energy consumption

VII Some Methods in Non-market Valuation

Choice Experiments

Kenneth Train, Discrete Choice Methods with Simulation, Ch 2 and 3.

Kolstad Ch 16.

Freeman, The Measurement of Environmental and Resource Values: Theory and Methods (RFF Press).

Haab and McConell, Valuing Environmental and Natural Resources: The Econometrics of Non-Market Valuation (New Horizons in Environmental Economics)

A. Arora, Sangeeta Bansal and P. S. Ward Do farmers value rice varieties tolerant to droughts and floods? Evidence from a discrete choice experiment in Odisha, India", *Water and Resource Economics*, volume 25, pp 27-41, (2018)

Main Book References

1. Nick Hanley, Jason F Shogren and Ben White. Environmental Economics in Theory and Practice. MacMillan 1997.
2. Kolstad Charles D. Environmental Economics. Oxford University Press. 2003.
3. Baumol William J. and Oats Wallace E. The Theory of Environmental Policy. Second Edition. Cambridge University Press. 1994.
4. Sterner Thomas. Policy Instruments for Environmental Protection. RFF. 2002

5. Stavins Robert N. *Economics of the Environment: Selected Readings*. Fourth Edition. W.W. Norton and Company. 2000.
6. Jeroen C.J.M. van den Bergh, *Handbook of Environmental and Resource Economics*
7. Maler Karl-Goran and Jeffrey R Vincent. *Handbook of Environmental Economics. Environmental Degradation and Institutional Responses*. Volume I. North-Holland, 2003. Ch 11.
8. Sangeeta Bansal. "Climate Change Negotiations: Challenges and Opportunities for India" in *India and the World Economy* (ed.) Jayati Ghosh, Oxford University Press, Accepted in 2011.

Further readings

- Lyon, T. P. and John, W. M. (2008), 'Corporate Social Responsibility and the Environment: A Theoretical Perspective,' *Review of Environmental Economics and Policy*, 2(2), 240-26
- Portney, P. R. (2008), 'The (not so) New Corporate Social Responsibility: An Empirical Perspective,' *Review of Environmental Economics and Policy*, 2(2), 2
- Blackman, A., 2009. Alternative Pollution control policies in developing countries. *Review of Environmental Economics and Policy*.
- Philippe Mahenc (2008). Signaling the environmental performance of polluting products to green consumers. , 26(1), 0–68. doi:10.1016/j.ijindorg.2006.10.005
- Vincenzo Denicolò A signaling model of environmental overcompliance
Journal of Economic Behavior & Organization Volume 68, Issue 1, October 2008, Pages 293-303
- Sartzetakis E.S., Xepapadeas A., Petrakis E. (2012), "The Role of Information Provision as a Policy Instrument to Supplement Environmental Taxes", *Environmental and Resource Economics*, Vol. 52, 347–368.
- Sengupta, A. (2012), "Investment in Cleaner Technology and Signaling Distortions in a Market with Green Consumers", *Journal of Environmental Economics and Management*, Vol. 64 (3), 468–480.