

**Centre for International Trade and Development
School of International Studies**

Course : MA in Economics (with specialization in World Economy)

Course Title: Environmental Economics

Course Number: IE 510

Course Type: Optional

Course Faculty: Professor Sangeeta Bansal

Credits: 4

Contact Hours: 4 hours per week

Course Objectives:

This optional course is designed to introduce students to key contemporary issues in environmental economics. The course is founded in economic theory and covers economic analysis of the causes of environmental degradation and regulatory instruments and policies that can be adopted for environmental management. Applications of various approaches to real world environmental problems, technology choices, and policy measures will be presented in class to illustrate key concepts. It will also introduce students to valuation techniques, and global environmental concerns such as climate change. The course comprises of lectures, class discussions, tutorials, student presentations, etc. 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.

Learning Outcomes: Students will be equipped with theoretical and applied empirical methods, and econometric tools to apply to environmental issues. They will be able to analyze and assess the implications of using various environmental policy instruments, and evaluate the costs and benefits of undertaking pollution control projects. This will aid them in advising policy makers in designing the appropriate environmental policies in specific political contexts. They will understand problems pertaining to management of global environmental challenges, and potential ways to address them. They will learn skills such as problem framing and solving, team work, and presenting research papers. The students will be prepared to do advanced research in the area of environmental economics. They'll also be prepared to take up jobs such as teaching faculty, professional economists in research organization and think tanks, and corporate jobs.

Evaluation Methods: Sessional work (1 paper presentation, and assignments), mid-semester and end-semester exams.

Course Content

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)

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

Hanley, Shogren and White.

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

Jeroen C.J.M. van den Bergh, Handbook of Environmental and Resource Economics, ch 13.

II Genesis of Environmental Problems

Market Failures

Public Goods and Externalities

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, K. (2013). Voluntary approaches to environmental protection and resource management. *Annu. Rev. Resour. Econ.*, 5(1), 161-180.
- Segerson and Miceli “Voluntary environmental agreements: Good or bad news for environmental protection?” *JEEM*, 36: 109 – 30 (1998).
- 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.
- Bansal Sangeeta, M. Khanna and J. Sydlowski (2021). Incentives for Corporate Social Responsibility in India: Mandate, Peer Pressure and Crowding-Out Effects, *Journal of Environmental Economics and Management*, (105), 2021, 102382.
- Lyon, T. P., & Maxwell, J. W. (2020). Corporate social responsibility and the environment: A theoretical perspective.
- 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).

VII Global Environmental Issues

Transboundary environmental problems

Global Commons

Environmental conflict, bargaining and cooperation

Design of international agreements

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

Mitigating emissions related to energy consumption

Jeroen C.J.M. van den Bergh, Handbook of Environmental and Resource Economics (1999).

VIII. Energy Economics

Energy demand

Energy efficiency

Sustainable energy systems

Alternative sources of energy, renewable energy

Energy policy

IX Valuation

Valuing the damage caused by pollution

Types of value: use value, option value, non-consumptive use value

Valuation methods: revealed preference methods, stated preference methods

Kolstad Ch 16.

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

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 Readings (Books)

1. Environmental Economics and Policy, Lynne Lewis and Tom Tietenberg, Routledge, 2022.
2. Stavins, R. N. (Ed.). Economics of the Environment: Selected Readings, 7th edition, 2019. Cheltenham, UK: Edward Elgar Publishing Ltd.
3. Sterner Thomas and Jessica Coria. Policy Instruments for Environmental and Natural Resource Management. RFF. 2012.
4. Nick Hanley, Jason F Shogren and Ben White. Environmental Economics in Theory and Practice. MacMillan 1997.
5. Kolstad Charles D. Environmental Economics. Oxford University Press. 2011.
6. Baumol William J. and Oats Wallace E. The Theory of Environmental Policy. Second Edition. Cambridge University Press. 1994.
7. Jeroen C.J.M. van den Bergh, Handbook of Environmental and Resource Economics (1999).
8. Maler Karl-Goran and Jeffrey R Vincent. Handbook of Environmental Economics: Environmental Degradation and Institutional Responses. Volume I. North-Holland, 2003.
9. Spash, C. (2017). The Routledge Handbook of Ecological Economics. New York: Routledge.

Further Readings

- Blackman, A., (2009). Alternative Pollution control policies in developing countries. *Review of Environmental Economics and Policy*.
- Weitzman (1974), "Prices vs Quantities", *RES*, 41 (4) 477 – 491.
- Bansal Sangeeta and S. Gangopadhyay, (2003), Tax-Subsidy Policies in the Presence of Environmentally Aware Consumers' *Journal of Environmental Economics and Management* 45, 333-355.
- Bénabou, R., & Tirole, J. (2006). Incentives and prosocial behavior. *American Economic Review*, 96(5), 1652-1678.
- Ambec, S., & De Donder, P. (2022). Environmental policy with green consumerism. *Journal of Environmental Economics and Management*, 111, 102584.
- Greenstone, M. and R. Hanna (2014). Environmental Regulations, Air and Water Pollution, and Infant Mortality in India, *American Economic Review*. 104(10): 3038–3072.
- Oak, H., & Bansal, S. (2022). Enhancing energy efficiency of Indian industries: Effectiveness of PAT scheme. *Energy Economics*, 106220.
- 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.
- Philippe Mahenc (2008). Signaling the environmental performance of polluting products to green consumers. *International Journal of Industrial Organization*, 26(1), 0–68. doi:10.1016/j.ijindorg.2006.10.005
- 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.
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- 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)
- 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.