

## **Environmental Economics (2015)**

**Number of credits:** 4

**Number of hours:** Lectures: 42 hours (approximately)

**Faculty:** Meeta Keswani Mehra

**Course outline:** This one semester optional course is designed to introduce students to key contemporary issues in environmental economics and equip them with the tools and methodologies that are in general applied to analyze environmental problems and policies. The course comprises lectures, 1 term paper to be submitted per student and 1 research paper to be presented. 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:** Term paper: 20%; Mid semester examination: 30%; End semester examination: 50%

### **Course Outline and Reading List**

#### **I. Introduction (4 lectures)**

- The environment and economics
- Genesis of environmental problems: market failures, public goods and externalities
  1. *Baumol and Oates, Chps 2, 3, 4, 6.*
  2. *Kolstad, Chp 5*
  3. *Nordhaus, W. "The Problem of Global Public Goods" Working Paper 2005.*
  4. *Handbook Chp 13.*

#### **II. Environmental Regulation (7 lectures)**

- Command and control methods: standards, technology mandates,
- Market based incentives: taxes and tradable permits, property rights, liability rules
- Incentives and market structure
- Voluntary mechanisms
  1. *Coase, R.H. (1960) "The Problem of Social Cost," Journal of Law and Economics, 3: 1- 44.*
  2. *Hahn,R. (1989), "Economic Prescriptions for Environmental Problems", Journal of Economic Perspectives, 3 (2): 95-114.*
  3. *Hanley, Shogren and White, Chp 4*
  4. *Kolstad, Chp 17*
  5. *Goulder, L. and Parry, I, (2008), "Instrument Choice in Environmental Policy," Review of Environmental Economics and Policy, 2(2): 152-174.*
  6. *Segerson, K. and Miceli, T, (1998), "Voluntary Environmental Agreements: Good or Bad News for Environmental Protection?" Journal of Environmental Economics and Management, 36 (2): 109 – 30.*
  7. *Maxwell, John W., Lyon, Thomas P., Hackett, Steven C. (2000). "Self Regulation and Social Welfare: The Political Economy of Corporate Environmentalism", Journal of Law and Economics, 43: 583-617.*
  8. *Boyer, Marcel and Laffont, Jean-Jacques, "Towards a Political Theory of the Emergence of Environmental Incentive Regulation," RJE, 30:137-57 (1999).*

9. Joskow, Paul L, Schmalensee, Richard, (1998), "The Political Economy of Market-Based Environmental Policy: The US Acid Rain Program," *Journal of Law and Economics*, 41: 37-83.

### III. Role of Information in Environmental Decision Making and Regulation (6 lectures)

- Asymmetric information
- Uncertainty
- Public disclosure
  1. Weitzman, M., (1974), "Prices versus Quantities", *Review of Economic Studies*, 41 (4):477 – 491.
  2. Roberts, M.J. and Spence, M. (1976), "Effluent Charges and Licenses under Uncertainty", *Journal of Public Economics*, 5: 193-208.
  3. Kwerel, Evan, (1977), "To tell the truth: Imperfect Information and Optimal Pollution Control", *Review of Economic Studies*, 44 (3): 595 – 601.
  4. Tietenberg, T and Wheeler, D. (1998) "Empowering the Community: Information Strategies for Pollution Control." <http://www.colby.edu/personal/t/ttieten/front.pdf>
  5. Afsah, S. Laplante, B., Wheeler, D. (1997). "Regulation in the Information Age: Indonesia's Public Information Program for Environmental Management", *The World Bank, Development Research Group, Washington DC.*  
<http://siteresources.worldbank.org/NIPRINT/Resources/RegulationInTheInformationAge.pdf>
  6. Newell, Richard and Pizer, William, (2000) "Regulating Stock Externalities Under Uncertainty," *RFF Discussion Paper 99-10 (2000).*

### IV. Economic Growth, Technical Change, and Environmental Pollution (8 lectures)

- Economic growth and environment
- Incentives for technological development
  1. Downing, P.G. and L. J. White (1986), "Innovation in Pollution Control", *Journal of Environmental Economics and Management*, 13: 18-29.
  2. 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.
  3. Porter, Michael E., and Claas van der Linde. (1995). "Toward a New Conception of the Environment-Competitiveness Relationship." *Journal of Economic Perspectives*, 9(4): 97–118..
  4. Jaffe, A.B. and Stavins, R.N. (1995), "Dynamic Incentives of Environmental Regulations: The Effect of Alternative Policy Instruments on Technology Diffusion", *Journal of Environmental Economics and Management*, 29: S-43-S-63.
  5. Kolstad, Charles D. (2010), "Regulatory Choice with Pollution and Innovation," *NBER Working Paper 16303.*
  6. Xepapadeas, Anastasios, 'Economic Growth and the Environment' in M-V, 2005.
  7. Bovenberg, Lans and Smulders, Sjak, (1995), "Environmental Quality and Pollution Augmenting Technological Change in A Two-Sector Endogenous Growth Model", *Journal of Public Economics*, 57: 369-91.

8. *Barbier, Edward (1999), "Endogenous Growth and Natural Resource Scarcity", Environmental and Resource Economics 14: 51–74.*
9. **"Endogenous Growth and Sustainable Development", Chp 5 in Aghion, Philippe and Howitt, Peter, 'Endogenous Growth Theory', 1999, The MIT Press, Cambridge, Massachusetts.**

#### V. **Transboundary Environmental Issues (6 lectures)**

- Economics of climate change: causes; possible effects; costs of mitigating green house gas emissions; adaptation measures
  - Design of international agreements
  - Environmental conflict, bargaining and cooperation
  - International trade, FDI and the environment
1. *Baumol and Oates Chp 16*
  2. *Hanley Shogren and White Chp 6.*
  3. *Kolstad, Chp 19*
  4. ***Barrett, Scott (1994), "Self Enforcing International Environmental Agreements", Oxford Economic Papers 46: 878 – 894.***
  5. *Kolstad, Charles D. and Ulph, Alistair (2006) "Learning and International Environmental Agreements," Working Paper.*  
<http://www2.bren.ucsb.edu/~kolstad/HmPg/papers/Learning%20and%20International%20Environmental%20Agreements%20Kolstad%20&%20Ulph.pdf>
  6. *Toman, M., Chakravorty, U., and Gupta, S (eds.), "India and Global Climate Change: Perspectives on Economics and Policy from a Developing Country", Resources for the Future Press, Washington DC.*
  7. *Aldy, J. and Stavins R.N.(eds.), (2007). "Architectures for Agreement: Addressing Global Climate Change in the Post Kyoto World".*
  8. ***Mehra, Meeta K. Trade, Environment and Natural Resources: A Developing Country Perspective. In Chopra, K. and Dayal, V. (Eds.), Handbook of Environmental Economics in India. Oxford University Press. October 2009.***

#### **Main and Supplementary Text Books**

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. Carroro, Carlo, and Siniscalco, Domenico, New Directions in the Economic Theory of the Environment, 1997, Cambridge