

Syllabus for MSS in Economics

Econ 5107 **Environmental Economics**
Optional **Contact Hour 3** **Credit 3**

Section A

Introduction: Natural resource; Ecology; Environment; Environmental economics; Biodiversity; Sustainable development; Pollution.

Market for Environmental Issues: Market equilibrium; Public good; Externality; Modeling the market of a public good; Modeling negative externality; External cost; Competitive versus efficient equilibrium; Property right; Coase theorem; Common property resources.

Economic Solution to Environmental Problems: Market instruments; Pollution charge; Subsidy; Deposit-refund system; Pollution permit trading system; Benefit-cost analysis; Environmental impact assessment.

Environmental Valuation: Environmental values - user versus non-user; Household health production function model; Travel cost method; Hedonic model; Contingent valuation method; Production, cost and profit function estimation for valuing the environment.

Agriculture, Environment and Development: Salinity and agricultural production; Pesticide and fertilizer use in agriculture; Waste-water irrigation; Crop residue burning; Shifting cultivation; Environmental basis for development.

Environment and Population in Global Perspective: Population growth and change in the demographic structure: trends and diversity; Environmental crisis due to population explosion; Population and environmental complex inter-relationship.

Section B

Air Quality: Ozone depletion; CFC; GHG; Global warming; Strategic response to global warming - pollution charge, gasoline tax, Btu tax, carbon tax, tradable permit system for CO₂ emissions; Welfare loss from urban air pollution; Health impact of air pollution; Vehicular air pollution; Indoor air pollution problem.

Water Quality: Sources of water; Types of pollutants; Benefit-cost analysis of water quality control policy; Effluent limit; Effluent fee;

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Tradable effluent permit market; Flat fee, declining block and increasing block pricing structure of water supplies; Cost of arsenic contamination; Cost of water borne diseases; Demand for improved household water supply.

Solid Waste Management: Sources and types of waste; Cradle-to-grave management approach; Environmental controls for solid waste management; Municipal solid waste (MSW); Modeling the market for MSW management service; Market approach to MSW policy.

Forest and Natural Disaster: Forest ecosystem; Inland forestry; Valuation of forest recreational amenities; Mangrove; Frequency, severity and impacts of natural disaster; Role of mangrove during storm.

Environmental Issues of Bangladesh: Natural hazards-flood, cyclone and riverbank erosion; Environmental impact of human interference; Environmental policy of Bangladesh government.

List of References:

- Callan, S.J. and Thomas, J.M. (1996). *Environmental Economic and Management: Theory, Policy and Applications*, IRWIN, Chicago.
- Dorfman, R. and Dorfman, N.S. (1993). *Economics of the Environment- Selected Readings*, (ed.), W. W. Norton and Company, New York.
- Elahi, K.M., Ahmed, K.S. and Mafizuddin, M. (1991). Riverbank Erosion, Flood and Population Displacement in Bangladesh, *Riverbank Erosion Impact Study*, (ed.) JU, Dhaka.
- Hanley, H., Shogren J.F. and White, B. (2004). *Environmental Economics in Theory and Practice*, (ed.), Macmillan India Ltd., New Delhi.
- Haque, A.K.E., Murty, M.N. and Shyamsundar, P. (2011). *Environmental Valuation in South Asia*, Cambridge University Press, Delhi.
- Kolstad, C.D. (2000). *Environmental Economics*, Gopsons Papers Ltd., India.
- Pearce D. and Turner, R.K. (1998). *Economics of Natural Resources and Environment*, McGraw-Hill, New York.
- Stern, T. (2003). *Policy Instruments for Environmental and Natural Resource Management*, Resources for the Future, Washington, DC.
- Tietenberg, T. (2006). *Environmental and Natural Resource Economics*, 7th edition, Addison Wesley, New York.