Our economic and social systems are increasingly facing challenging questions regarding the protection of the environment, the management of natural resources and the achievement of economic progress that is in some sense “sustainable” given technological and natural constraints. Decision-makers express growing concern for these issues, though their approaches to them are not always consistent or well-directed. This course is founded on the conviction that economic reasoning has much to offer (though it is not a panacea) in addressing these challenges. This course is designed to provide the basic conceptual grounding for the use of economics to inform decisions regarding the proper use of the environment.

Beginning with the concept of “sustainability”, the course develops a framework for an economic assessment of environmental problems including the notion of market failures, policy design issues associated with using alternative economic incentives and instruments such as pollution taxes, environmental subsidies and marketable tradable pollution permits, cost-benefit analysis as applied to environmental issues, and the valuation of environmental resources. The last portion of the course examines principles of the economically efficient management of renewable (e.g., fisheries, forests) and depletable (e.g., fossil fuels, natural ecosystems) resources, time permitting. A number of applied settings are used to demonstrate the principles taught in the course.

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E-mail: Mcchevychase52@aol.com

Course Prerequisites. The prerequisite for this course is a graduate level course in microeconomic theory. The course material is presented using economic reasoning and graphical and mathematical analysis. Calculus will be use in some specific examples in the lecture materials. Some case studies involving econometric analysis and the use of spreadsheet tools will be examined in the context of the course.

Course Requirements. There will a mid-term and a final exam. The mid-term will be worth roughly 40% of the final grade. The final exam will be worth roughly 50% of the final grade. There will be homework in the form of problem sets throughout the course. The problem sets will be worth 10% of the final grade. The summer course goes quickly so please try to stay current with course materials.
Readings. The basic course texts are the Environmental Economics: In Theory and Practice, 2nd Edition, 2007, by N. Hanley, J. Shogren and B. White and Economics of Natural Resources and the Environment, 1990, by D. Pearce and R.K. Turner. Readings from various journals and working papers will be assigned throughout the course. Supplemental readings listed below may be required, time permitting.

SYLLABUS AND READINGS

1. Sustainable Development: An Economic Perspective

Pearce, D. and Turner, K., Chapter Two, The Circular Economy, pp. 29 - 42

Hanley et al., Chapter Two, The Economics of Sustainable Development, pp. 14 - 41

2. The Environmental Kuznets Curve

Introductory Slides

Case Study: Lead from Gasoline


THE ECONOMICS OF THE MANAGEMENT OF THE ENVIRONMENT

3. Economic Efficiency, Property Rights and Market Failures


Coasean Bargaining

Hanley et al, Chapter Three, Market Failure: Introduction (3.1) and Markets: Efficient or Otherwise (3.2), pp. 42 - 48

Externalities

Hanley et al., Chapter Three, Market Failure: Externalities (3.3), pp. 49 – 57

Supplemental Reading

Hanley et. al., Chapter Three, Market Failure: Non-convexities (3.6), pp. 65 - 67
Public Goods

Randall, Alan, Chapter Eight, Sources of Inefficiency, Resource Economics, 1981, pp. 179 – 190***

Hanley et al., Chapter Three, Market Failure, Non-Rivalry and Public Goods (3.5), pp. 61 – 65 and Concluding Remarks, (3.8), pp. 75 - 79

4. Designing Pollution Reduction Strategies

Hanley et al., Chapter Four, Incentive Design, Introduction (4.1), pp. 82 - 85

“A Pollution Taxonomy”: My Notes

Emission Charges

Hanley et al., Chapter Four, Incentive Design, Emissions Charges (4.2.1), pp. 85 – 88

Pearce, D. and Turner, K., Chapter Six, Taxation and Optimal Pollution (6.1- 6.4), pp. 84 – 88

Pollution Reduction Subsidies

Hanley et al., Chapter Four, Incentive Design, Subsidies (4.2.4), pp. 97 – 100

Pearce, D. and Turner, K., Chapter Seven, Environmental Standards, Taxes and Subsidies, Pollution Reduction Subsidies (7.3), pp. 107 – 109


Supplemental Reading

Adverse Selection/Eco-Products

Hanley et al., Chapter Three, Market Failure, Adverse Selection (3.7.2), pp. 73- 74

Marketable Tradable Permits

Pearce, D. and Turner, K., Chapter Eight, Marketable Pollution Permits (8.1-8.4), pp. 110 - 119

Hanley et al., Chapter Five, Incentive Design, Efficiency Properties of Tradable Pollution Permits (5.3), pp. 144 - 147
Case Study: Greenhouse Gas Emissions Trading

http://www.epa.gov/climatechange/downloads/s2191_EPA_Analysis.pdf

Pearce, D. and Turner, K., Chapter Six, Charges as a Low-Cost Solution to Standard Setting, (6.8), pp 94 – 96

Supplemental Reading

Pearce, D. and Turner, K, Chapter Seven, Taxes Versus Standards (7.2), pp. 104 - 107

5. Benefit-Cost Analysis


Project-Based Discounting


OMB Guidance, Circular A-4, Regulatory Analysis, September, 2003, Discount Rates, p. 31 -37***

Case Study

The Economics of Community-Based Wind Power Projects

Supplemental Reading


6. Benefits Assessment


Hanley et al., Chapter Twelve, The Theory and Methods for Environmental Valuation, The Divergence in Value Measures, (11.2.2), pp. 327 – 332

Hedonic Valuation Methodologies

Hanley et al., Chapter Twelve, Theory and Methods for Environmental Valuation, The Hedonic Pricing Method, (11.3.4), pp. 352 – 356

Case Study: Hazardous Waste Sites


Value of a Live Saved


Contingent Valuation Methodologies


THE ECONOMICS OF RESOURCE MANAGEMENT

6. Renewable Resources

Tietenberg, T., Chapter Thirteen, Renewable Common-Property Resources: Fisheries and Other Species***

Supplemental Reading

Game Theory
Hanley et al., Chapter Three, Market Failure, Non-exclusion and the Commons, (3.4), pp. 57 – 61

7. Nonrenewable and Depletable Resources

Tietenberg, T., Chapter Seven, The Allocation of Depletable (i.e., Energy) and Renewable Resources: An Overview***
Tietenberg, T., Chapter Five, Sustainable Development, pp. 89 – 93***

Supplemental Reading


*** - on E-reserves