

SUMA K4190: Economics of Sustainability Management

Columbia University

Fall 2013

Instructor: Alan Treffeisen

Curriculum Grading Assistant: Amanda Lechenet

Office hours to be determined

Course overview and objectives:

Economics of Sustainability Management

(Draft based on Spring 2012 syllabus of Prof. Bose)

Economics of Sustainability Management teaches students to use an economic framework to analyze environmental decision-making. Students will learn to understand and apply basic microeconomic tools to analyze and to formulate solutions to environmental problems.

The course satisfies the economics requirement of the Sustainability Management program.

Prerequisites:

Some exposure to economics at the undergraduate level is assumed. Most of the first class meeting will be devoted to a review of basic microeconomic concepts. Students who have had an undergraduate course in intermediate microeconomics and some exposure to calculus should be well-prepared for the course. Students with no economics background can do well, but will need to put extra effort into the class. If you are concerned about your level of preparation in economics, please see the instructor after the first class meeting, or contact me by e-mail.

The course will make limited use of basic calculus. While knowledge of calculus is not absolutely essential for this course, in some cases it will facilitate the understanding of the material. A strong mathematics background may help students with no economics training to grasp economic concepts more easily. You may find the lectures from Columbia's math camp to be helpful in reviewing algebra and elementary calculus.

Required textbook:

The required textbook is Kolstad, Charles D., *Environmental Economics*, 2nd edition.

For some topics not covered in Kolstad, we will use Harris, Jonathan M., and Brian Roach, *Environmental and Natural Resource Economics*, 2nd edition. The relevant chapters will be posted online (the authors have made the book available free of charge).

The textbooks will be supplemented with other readings available in Courseworks.

Evaluation

Regular attendance and active participation in class are required. Students should do the required readings in advance of class. Grading will have both an individual and a group component.

An in-class, closed-book midterm exam is scheduled for October 28. A second closed-book exam, on the material covered since the midterm, will be held on the scheduled final exam day, Monday, December 16. Each exam will count for 25 percent of the final grade.

Problem sets (around five) will count for 15 percent of the final grade. Problem sets will be done in groups of four or five students. Except under extenuating circumstances, the composition of the teams should remain the same for all problem sets.

There will be a team presentation on the economics of a current environmental policy problem, worth 25 percent of the final grade. Teams will be determined on the basis of topic interests, and will be different from the homework teams. The team presentations will take place during the December 10-December 12 study days, or at another time mutually agreed upon.

Class participation will count for 10 percent of the grade. In addition to being active in class discussion, each student will be assigned one class for which he or she should be prepared to answer briefly some questions regarding the reading assignments for that day.

Academic Integrity

The School of Continuing Education does not tolerate cheating and/or plagiarism in any form. Students who violate the Code of Academic and Professional Conduct will be subject to the Dean's Disciplinary Procedures. The Code of Academic and Professional Conduct can be viewed online at:

<http://ce.columbia.edu/node/217>

Students should follow established styles for citation and attribution. The university library offers relevant information:

Course Content

This list includes only readings from the Kolstad and Harris and Roach textbooks. A more detailed syllabus will list additional readings.

Session 1

September 9, 2013

Introduction to course and review of basic economic concepts

Scarce resources and unlimited wants
Normative vs. positive economics
Supply and demand
Elasticity

Kolstad, Chapters 1 and 2.

Session 2
September 16, 2013
Social choice; efficiency and markets

The problem of adding individual preferences
Efficiency and the market
Pareto optimality and the market

Kolstad, Chapters 3 and 4

Session 3
September 23, 2013
Environmental valuation

Demand theory
Revealed preference
Stated preference

Kolstad, Chapters 7, 8, 9, and 10

Session 4
September 30, 2013
Cost-benefit analysis

Discounting
Intertemporal decision-making

Kolstad, Chapter 6

Session 5
October 7, 2013

Market failure, regulation, and government failure

Information aggregation
Regulatory capture
Distortionary subsidies
Monopoly and rent-seeking

Kolstad, Chapter 11

Session 6
October 14, 2013
Emission prices and fees

Pigovian taxes
Marketable permits

Kolstad, Chapter 12, and Chapter 13, section II (pp. 272-280)

Session 7
October 21, 2013
Market failure

Externalities
Public goods
The Coase theorem
The tragedy of the commons

Kolstad, Chapter 5, and Chapter 13, section I (pp. 262-272)

Session 8
October 28, 2013
Midterm exam

November 4, 2013 No classes scheduled

Session 9
November 11, 2013
Information problems

Regulation over space and time
Asymmetric information
Moral hazard
Adverse selection
Regulation under unknown costs
Audits and enforcement

Kolstad, Chapters 14, 15, and 16

Session 10
November 18, 2013
Voluntary actions and agreements

Market-driven actions
Voluntary and/or strategic responses to
Regulatory “carrots” and “sticks”

Kolstad, Chapter 17

Session 11
November 25, 2013
Non-renewable resource management

Harris and Roach, Chapter 12

Session 12
December 2, 2013
Renewable resource management

Harris and Roach, Chapter 14

Session 13
December 9, 2013
Course wrap-up

December 10-12 (exact dates and times to be determined)
Group presentations

Monday, December 16, 7:10-10:00 pm

Second exam (Schedule allows for three hours, but exam will be no longer than 110 minutes.)