Introductory Environmental and Health Economics (ECON/ENVR/SOSC 2310) Syllabus

The Hong Kong University of Science and Technology

Fall 2016

Lectures: Tuesday and Thursday, 15:00-16:20

Course Website: CANVAS

Instructor: Guojun HE

Office Number: 3469-2423; Email: gjhe@ust.hk

Office Hours: Tuesday 16:30 - 17:30, or by appointment, Room 2381

TAs:

Jiaying CHEN (jchenbc@ust.hk)

Haoshuo LIU(hliubd@connect.ust.hk)

Course Description

This course introduces students to basic findings in environmental and health economics. The emphasis is on how the economic models and concepts can be used to analyze environmental and health problems. The course is divided into three roughly equal sections. The first section of the course will develop the basics of your economic toolbox. We will include a brief review of basic economic analysis and then spend a substantive amount of time discussing the economic concepts that are most relevant to environment and health. The second and third section discuss the key topics in environmental and health economics. Particular issues include market failure, externality, common goods and public goods, valuation of non-market goods, environmental regulations, pollution and health, determinants of health, asymmetric information and moral hazard, the role of government in improving health.

The aim of the course is to foster an intuitive understanding of environmental and health issues from an economist's point of view. Upon completion of the course most students should be able to analyze a study described in the newspaper and ascertain its credibility.

Learning Objectives

- Understand basic economic models (1.1)

- Use economic models to analyze environmental issues (1.3)

- Foster economic intuition to understand social problems (1.2)

- Understand the methods to value non-market goods (such as life and nature) and the controversies (8.3)

- Evaluate environmental and health policies (4.2)

Prerequisites and Restrictions

No prerequisites are specified for this course. However, basic knowledge of math, economics and statistics are needed to understand the course materials.

- Find maximum/minmum of a given function

- Simple Calculus:

  Take derivative: $y = x^2$, $y = x^3$, $y = ln(x)$

Textbooks and Readings

We will be drawing on many different resources for this class including journal articles, newspaper articles and textbooks.

The slides I will provide should be enough for most students for studying. For more advanced materials, please check the following two books:

- "The Economics of the Environment", by Peter Beck and Gloria Helmand, Prentice Hall; 1 edition, 2010.

- "Microeconomics" by Jeffrey Perloff, Pearson Press.

Assignments

- **Problem Sets:**

  We will have 4 problem sets during the course of the semester. The purpose of these problem sets is to help cement the theoretical economic foundations underlying the models we will discuss in class. Completing the problem sets will be very helpful for the midterm and the final examination. You are welcome to work on problem sets with your classmates, but I expect everyone to **write up their own set of solutions** to each assignment. Writing up your own solution set will help ensure that you understand the concepts. If you work with classmates on assignments, please **make a note of who you worked with** at the top of your assignment.

- **News Article Analysis**:

  Topics that are related to environment and health are almost constantly in the news. To encourage you to think like an economist, in this course you will need to discuss one newspaper article that relates to environmental or health issues.

After you read an article, write an analysis of the article including a brief summary of the article and then discuss how the concepts covered in this course inform your analysis of the news article (no more than 4 pages in total). In your analysis, you can either support or oppose (some of) the views expressed in the article; but regardless of your position, your arguments should be related to what you have learnt in this course. You may draw graphs or collect related data/documents to support your analysis.

The articles must come from mainstream newspapers (New York Times, Wall Street Journal, Financial Times, The Economist, and major reliable Chinese newspapers). You should clearly state the title of the article and the publication in which you found it in your analysis. Please also provide a link or a paper copy of the article.

Grading

Overall grades will be based on your performance on graded questions in the problem sets (20%), news article analysis (10%), participation (10%), the midterm (25%), and the final exam grade (35%). I reserve the right to assign higher grades than this formula allows for those who do better on the final than on the earlier exam.

Your performance on participation does not solely depend on your attendance or in-class participation. You can also show your participation by coming to the office hours, discussing with the TA or me, etc.

E-mailing

Please put "SOSC/ENVR2310" in the subject line of all e-mail correspondence. **E-mail should be reserved for questions related to scheduling, appointments or administrative issues.** I have found that it is not possible to answer questions about class materials by e-mail; please come to office hours or schedule an appointment if you have any questions related to course materials.

Study/Discussion Groups

We will have in-class discussions from time to time. You need to form small groups (4-5 people per group) for discussions and Q&A. There is no grading on group performance. It is just a way to encourage you to discuss with your classmates.

Exam Poll:

- Open-book
- Closed-book
- Exams with a cheat-sheet (you can bring a piece of A4 paper with notes for your reference to an exam)

* Exam difficulty: Open-book exam > Exam with a cheat-sheet > Closed-book exam.

Miscellaneous:

Please keep your cellphone muted and catching Pokemons in class is not allowed. If you have emergencies, if you need disability-related accommodations, if you have medical information you wish to share with me, or if you need special arrangements for the exams, please see me privately after class or during the office hours.

Course Outline (Tentative)

Week 1: Sep. 1
- Course Overview
- Economics and Environmental Economics

Week 2: Sep. 6 and Sep. 8
- Principles of Economics
- Supply, Demand and Market Equilibrium

Week 3: Sep. 13 and Sep. 15 (Holiday)
- Comparative Statics

Week 4: Sep. 20 and Sep. 22 (Problem Set 1 Due)
- Consumer Surplus and Producer Surplus
- Social Optimum and Economic Efficiency

Week 5: Sep. 27 and Sept. 29
- Externalities
- Coase Theorem

Week 6: Oct. 4 and Oct. 6
- Public Goods
- The Tragedy of Commons

Week 7: Oct. 11 (Problem Set 2 Due) and Oct. 13
- Discussion and Q&A
- Midterm

Week 8: Oct. 18 and Oct. 20
- Valuing the Environment: Revealed Preference
- Valuing the Environment: Stated Preference

Week 9: Oct. 25 and Oct. 27
- Evaluating the Trade-Offs: Benefit-Cost Analysis
- Environmental Regulations: Market-Based vs. Command and Control

Week 10: Nov. 1 (Problem Set 3 Due) and Nov. 3

- Pollution and Health

- Growth, Pollution and Life Expectancy in China

Week 11: Nov. 8 and Nov. 10

- Determinants of Health

- Asymmetry Information, Moral Hazard, and Adverse Selection

Week 12: Nov. 15 and Nov. 17

- Second Best Theory

- Role of Government*

Week 13: Nov. 22 (Problem Set 4 Due) Nov. 24

- Climate Change, Energy, and the Future*

Week 15: Nov. 29 (News Article Analysis Due)

- Final Review

(* denotes flexible materials which will be covered only if we proceed as scheduled)