ECON/PPOL 5351

Yatang Lin Spring 2025

Syllabus: Environmental Economics

Time: Wed 18:30 - 21:20

Location: LSK 1009

Instructor: Yatang Lin

6052 LSK Building

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Office Hours: by appointment

TAs: Chen Xiaodong (xchenha@connect.ust.hk)

Zou Hongwei (hzouai@connect.ust.hk)

Course Objective and Learning Goals

The course is designed to introduce students to key contemporary concepts in environmental economics and equip them with the approaches in economics that are generally applied to analyze environmental problems and policies. The class will be divided into two parts. Part I will cover the ways in which markets fail to efficiently allocate resources in the presence of pollution along with the class of Pigouvian policies used to correct those failures. Part II will focus on the empirical techniques used by economists to assign monetary values to environmental costs and benefits.

Prerequisites

You should have completed Calculus and at least introductory microeconomics courses (MATH 1012/1013/1020/1023 and ECON 2103 or equivalent courses) before taking this class.

Requirements

The following are required for successful completion of the course: (1) three problem sets that involve problem solving, (2) an individual project (3) a final exam, and (4) class participation.

Course Website

Throughout this class, we will use the Canvas online discussion board. We encourage you to ask questions on the Canvas forum for clarifications, questions about concepts, or about your projects. Using Canvas for Q&A would allow students to see and learn from

other students' questions. Both the TA and the instructor will regularly check the board and answer questions posted, although everyone else is also encouraged to contribute to the discussion. A student's respectful and constructive participation on the forum will count toward his/her class participation grade. DO NOT email your questions directly to the instructors or TAs (unless they are of personal nature) — we will refrain answering your questions regarding course materials or problem sets through email.

Grading

Grades will be determined based on the following allocation:

> Three problem sets: 15%; Individual paper: 15%; Mid-term exam: 30%, final exam: 35%, Participation 5%. The instructor reserves the right to make small adjustments to final total grade score.

Problem Sets

We will have 3 problem sets. The purpose of these problem sets is to help cement the theoretical economic foundations underlying the models we will discuss in class. 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.

Exam Policy

Students who miss the test and/or exam on the scheduled dates would be marked zero. Alternative arrangements would only be granted to students with critical medical conditions, supported by sick leave certificates issued by medical doctors for the date of the exam. There will be NO make-up exams under any circumstances. A student who is excused from the test on medical grounds will have his/her final examination covering the weight of the missed test.

Both exams are going to be conducted in class. Detailed rules on exams will be disseminated later.

Individual Project

Students have the following options for an individual project

1. Evaluation of a particular environmental policy
2. An empirical research proposal

The final product will be a paper less than 10 pages long including references (font 12 and double spacing).

For a policy evaluation project, you can choose any given environmental policies you are interested in, describe the background of the policy, and discuss your evaluation of the policy in the following aspects: (1) Effectiveness: is the policy implemented successfully? are there any obvious loopholes? (2) Efficiency: does the policy achieve its goal with the lowest economic and social cost? Are there any significant deadweight loss? (3) Equity: how will the policy affect different groups of agents in the society differently? (4) Administration cost: is the policy costly administratively (think about monitoring, reporting, verification and enforcement cost)?

For a research proposal, your goal is to come up with a project that will ultimately produce convincing empirical evidence on an interesting, policy-relevant question, which might be developed into your thesis. You might also want to identify an existing empirical article in the economics literature for which you can obtain similar data. The proposal should include detailed descriptions of where you can find the data needed, and the econometric strategy you plan to use to test your hypotheses.

Deadline of submission: May 15th midnight, 2024. Late submissions will not be accepted.

Readings

The course does not have a required textbook, but you may find the following textbook useful for your study:
Charles Kolstad, Environmental Economics (Oxford University Press, 1st edition 2000, or 2nd edition 2010)
I will assign other readings as we progress. They are not required but they will be help you understand the course materials and put them in context.

Course Outline (*Tentative, instructor reserves the right to modify the content*)

Part I Market Failures and Pigouvian Policy

Week 1: Feb 5

• Course Overview

• Externalities

Week 2: Feb 12

• Coase theorem

Week 3 Feb 19 (PS1 assigned)

• Pigouvian Policies

Week 4 Feb 26

• Cap and Trade

Week 5: Mar 5

• Policy Evaluation

• Equity

Week 6: Mar 12 (PS1 due , PS2 assigned)

•Extraction of renewable and non-renewable resources

Week 7 Mar 19

•Environmental Valuation: Hedonic Method

•Midterm Review

Week 8 Mar 26

• Midterm Exam

• Environmental Valuation: Travel cost method

Week 9 Apr 9 (Apr 1-4 Midterm break, PS2 due, PS3 Assigned)

•Pollution and Health

•Value of Statistical life and Defensive Investments

Week 10 Apr 16

•Contingent Valuation

•Monitoring and Enforcement

Week 11 Apr 23

•Energy Efficiency

•Transportation

Week 12 Apr 30

• Climate Change: intro

• Climate Change: discounting and International Agreements

Week 13: May 7 (PS3 Due)

• ESG and Green investment

• Final exam review