

ECON 4464

Yatang Lin

HKUST

Spring 2022

## **Syllabus: Urban and Environmental Economics**

**Time:** Mon 04:30 – 05:50 PM, Fri 12:00 – 13:20 AM

**Location:** Zoom + TBA<sup>1</sup>

**Instructor:** Yatang Lin

6052 LSK Building

[liny@ust.hk](mailto:liny@ust.hk)

**Office Hours:** by appointment

**Tutorial time and location:** Wed 06:00 - 06:50 PM

**TAs:** Tengyu ZHAO ([tengyu.zhao@connect.ust.hk](mailto:tengyu.zhao@connect.ust.hk))

### **Course Summary**

The course is designed to introduce students to key contemporary concepts in urban and environmental economics, and to equip them with the approaches in economics that are generally applied to analyze urban/environmental problems and policies. The course will be divided into two parts. Part I will cover topics on the economics of cities, including rent and wage determination, the location decisions of households and firms, agglomeration economics, housing, transportation and land use. Part II will focus on environmental economics, covering topics on externalities, Pigouvian policies and environmental valuation.

### **Prerequisites**

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

### **Requirements**

The following are required for successful completion of the course: (1) 3 problem sets that involve problem solving; (2) mid-term and final exams; (3) Individual project; (4) class participation.

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<sup>1</sup> The course will be conducted in the form of interactive online course. Please find Zoom meeting information on canvas. Based on the situation of COVID-19, we might switch to mixed-mode teaching, which gives the option to students coming back to the classroom. Please pay attention to Emails from the University.

## **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.

## **Grading**

Grades will be determined based on the following allocation:

Three problem sets: 15%; Individual project: 15%; Mid-term exam: 30%, final exam: 35%. Class 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.

## **Individual Project**

Students have the following options for an individual project

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

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

For a policy evaluation project, you can choose any given urban or 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. Typical research subjects include evaluation of a policy using data, or the hedonic analysis of urban amenities you find interesting. 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 15<sup>th</sup> midnight, 2022. Late submissions will not be accepted.

### **Tutorials:**

There will be weekly tutorials for this course starting from week 4 (Feb 23). Problem sets and other questions will be discussed in the tutorials. We will discuss and provide feedbacks on the individual projects at tutorials as well.

### **Electronics**

No phones, you can use your laptop to take notes during lectures.

### **Email Policies:**

Please send all emails about logistic enquires to [liny@ust.hk](mailto:liny@ust.hk) or [tengyu.zhao@connect.ust.hk](mailto:tengyu.zhao@connect.ust.hk) . I prefer to answer all questions on course materials in person (during my office hour or after class) or on the Canvas discussion board (Please refer to the “Course Website” session).

### **Readings**

*Textbook:* Arthur O’Sullivan, Urban Economics (8th edition). McGraw-Hill 2011. ISBN 978-0073511474.

Jan K. Brueckner, Lectures on Urban Economics. MIT Press 2011. ISBN 978- 0262016360.

*Additional References (Not Required):* Edward Glaeser, Triumph of the City: How Our Greatest Invention Makes Us Richer, Smarter, Greener, Healthier, and Happier. Penguin Books 2012. ISBN 978-0143120544

Moretti, Enrico. The New Geography of Jobs. Houghton Mifflin Harcourt, 2012. ISBN 978-0547750118

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

#### **Week 1: Feb 4**

Introduction to Urban Economics

Microeconomics and econometrics review

**Week 2: Feb 7 and Feb 11**

Why do cities exist

**Week 3: Feb 14 and Feb 18 (PS1 Assigned)**

Why do firms cluster

**Week 4: Feb 21 and Feb 25**

City sizes

Urban growth (and decline)

**Week 5 Feb 28 and Mar 4 (PS1 Due)**

Urban land rent

Land use

**Week 6: Mar 7 and Mar 11 (PS2 Assigned)**

Neighborhood choices

Midterm review

**Week 7: Mar 14 and Mar 18**

**Midterm**

Intro to environmental economics

**Week 8: Mar 21 and Mar 25 (PS2 Due)**

Externality, cap and trade

**Week 9: Mar 28 and Apr 1**

Environmental valuation 1

**Week 10: Apr 4 and Apr 8 (PS3 Assigned)**

Environmental valuation 2

**Week 11: Apr 11 (Term break from Apr 13 – Apr 18)**

**Week 12: Apr 22 (PS3 Due)**

Housing

**Week 13: Apr 25 and Apr 29**

Transportation

**Week 14: May 6**

Climate change and cities

Final exam review