ECON 5670 Urban Economics
Spring 2026

Hong Kong University of Science and Technology

Department of Economics

Instructor	Deyu RAO 饒德宇 dyrao@ust.hk
Lecture	Thursdays 09:00AM - 11:50AM @ Rm 1, 31/F, Tower 1, Millennity
Office Hours	By appointment only. Preferred around lunchtime (noon ± 1h) on Tue/Wed/Fri @ LSK 6072
TA	Sasha SHI Yun sashashi@ust.hk
TA Office Hours	By appointment only.
Prerequisite	Microeconomics (ECON 2103/2113 or equivalent) A basic course in matrix calculus, statistics, or econometrics will be helpful in understanding the material.
Credit	3 units

Course Description

This course discusses the economics of cities in the context of housing, labor, and transportation. Topics include business and individual location decisions, land use, urban amenities, agglomeration economies, local governance, etc. The course covers empirical methods for urban policy analysis, such as non-parametric estimations, spatial regression-discontinuity (RD) designs, the hedonic model, and discrete choice models. This course also discusses advanced general equilibrium models used in contemporary urban literature, including household sorting models, and quantitative spatial models. Students will learn basic tools for the visualization of spatial GIS data, and analytical tools for empirical evaluations of urban policies.

Assessment Scheme

- Homework (15%): There will be two problem sets. Students are encouraged to discuss with each other but should submit their own copy. The first is theoretical; the second is empirical (coding). Submissions should be made online through Canvas.
- Midterm (25%): An in-class midterm exam will be scheduled on April 16th, covering topics and materials before the midterm. Venue TBA.

- Class participation (10%): In addition to program-level attendance policies, class participation will be measured from in-class mini-quizzes and peer reviews submitted during group presentations.

- Group Presentation (25%) and Paper (25%): Students should form groups of five and work on one of the following topics.

  - an evaluation of an urban policy;
  - a report analyzing an urban issue using spatial data;
  - a research proposal analyzing a question in urban economics.

  The final products include a group presentation at the end of semester, and a paper of 8-10 pages (12pt font, double space, excluding references, tables and figures).

  Groups should be formed by April 2nd via Canvas' People page. Feel free to post on the Discussions page to find group mates. Students without groups will be randomly assigned after April 2nd.

  Presentations will be $\sim$ 20 min per group (including Q&A), held in class on April 30th and May 7th.

  The final report is due on May 24th and should be submitted through Canvas by one of your group members.

  Presentation grades (25%) will be based on a combination of peer reviews (5%), as well as evaluations from the professor and the teaching assistant (20%). The paper or report, however, will be graded exclusively by the professor.

- Rubrics on Group Presentation and Paper: See table attached.

- Course AI Policy: In the context of this course, students are *encouraged* to employ AI or large language model (LLM) tools such as ChatGPT or HKUST GenAI to refine their final reports. These tools can be useful for improving clarity, organization, and overall writing quality, as well as for facilitating idea generation. At the same time, it is essential to uphold the highest standards of academic integrity. Students should use these tools judiciously, ensuring that the ideas, arguments, and substantive content of their final reports remain their own. Poor or unclear writing, particularly where it suggests a lack of basic revision or polishing, will be reflected negatively in grading.

Intended Learning Outcomes (ILOs)

On successful completion of the course, students will be able to:

- Develop a deep understanding of core concepts, principles, and models in urban economics, grounded in microeconomic theory.

- Apply economic reasoning and, where appropriate, formal modeling tools to analyze urban economic and policy problems.

- Use empirical evidence to evaluate the consequences of urban policies and formulate informed policy recommendations for governments and international organizations.

- Communicate economic intuition, empirical findings, and policy implications clearly and effectively in both oral and written English.
- Cultivate academic or professional interest in urban economics and related policy or research careers.

Note: For details on the Program Intended Learning Goals of the MSc in Economics Program, please refer to https://mscecon.hkust.edu.hk/program/about-program.

Academic Honesty and Integrity

Honesty and integrity are central values in HKUST. Please be aware of the importance and maintain a high standard of honesty in the problem sets and examinations in this course. Please familiarize yourself with the university rules and the HKUST academic honor code. The code will be strictly enforced, and any violation cases will be reported to the university. For details on academic integrity, please refer to https://registry.hkust.edu.hk/resource-library/academic-integrity.

Tentative Course Schedule

- **Module 1**. Principles of urban economics (3.5 lectures)
  1. Introduction
  2. Benefit and cost of cities
  3. Monocentric city model
  4. Rosen-Roback model
- **Module 2**. Topics in urban economics (1.5 lectures)
  1. Land use and zoning
  2. Local governance
  3. Urban transportation
  4. Housing
- **Lab Module**. Geospatial data visualization using software (2 lectures)
  1. Introduction to geospatial datasets
  2. Geospatial data visualization using MS Excel
  3. Geospatial data visualization using STATA
- **Module 3**. Reduced-form approaches in urban economics (1 lecture)
  1. Exploratory spatial data analysis
  2. Non-parametric estimations and spatial regression-discontinuity (RD) designs
  3. The hedonic model
  4. Discrete choice models
- **Module 4**. Quantitative spatial economics (3 lectures)
  1. Quantitative spatial models and trade models
  2. Dynamics and path dependence
- **Other in-class activities**
  - **Midterm** (0.5 lecture)
  - **Midterm Review and Recap** (if time allows)
  - **Group presentations** (1.5 lectures)

Note: This is a tentative course outline. The instructor may fine-tune the topics while ensuring that the course objectives are achieved.

Recommended Reading

Ahlfeldt, G. M., Redding, S. J., Sturm, D. M., & Wolf, N. (2015). The economics of density: Evidence from the Berlin Wall. Econometrica, 83(6), 2127–2189.

Bayer, P., Ferreira, F., & McMillan, R. (2007). A unified framework for measuring preferences for schools and neighborhoods. Journal of Political Economy, 115(4), 588–638.

Brueckner, J. K. (1986). The structure of urban equilibria: A unified treatment of the Muth-Mills model. In E. S. Mills (Ed.), Handbook of Regional and Urban Economics (Vol. 2, pp. 821–845). Elsevier.

Chetty, R., & Hendren, N. (2018). The impacts of neighborhoods on intergenerational mobility I: Childhood exposure effects. The Quarterly Journal of Economics, 133(3), 1107–1162.

Dingel, J. I., Miscio, A., & Davis, D. R. (2021). Cities, lights, and skills in developing economies. Journal of Urban Economics, 125, 103174.

Jerch, R., Kahn, M. E., & Lin, G. C. (2024). The impact of road rationing on housing demand and sorting. Journal of Urban Economics, 140, 103642.

LeRoy, S. F., & Sonstelie, J. (1983). Paradise lost and regained: Transportation innovation, income, and residential location. Journal of Urban Economics, 13(1), 67–89.

Monte, F., Redding, S. J., & Rossi-Hansberg, E. (2018). Commuting, migration, and local employment elasticities. American Economic Review, 108(12), 3855–3890.

Table 1: Rubrics on Group Presentation and Paper

Criteria	**Content Mastery**	**Critical Thinking and Analysis**
Excellent	Demonstrates exceptional comprehension (Evaluation level) by accurately explaining advanced urban economic theories and models and applying them to contemporary urban issues such as housing markets, transportation, land use, or local governance. Effectively uses well-chosen empirical or institutional examples and draws insightful connections across urban settings.	Provides an in-depth analysis (Synthesis level) with a well-developed argument, critical evaluation of empirical evidence, and integration of theory and data to generate original insights or policy implications in an urban context.
Good	Shows strong comprehension (Application level) by clearly explaining key urban economic concepts and models and their relevance to urban issues, supported by appropriate examples and logical reasoning.	Offers a clear analysis (Analysis level) with a coherent argument and sound evaluation of evidence, demonstrating an understanding of how economic mechanisms shape urban outcomes and policy trade-offs.
Satisfactory	Displays satisfactory comprehension (Comprehension level) by explaining basic urban economic concepts and their relevance to urban issues, with some supporting examples or discussion.	Presents a basic analysis (Application level) with a straightforward argument and limited evaluation of evidence, demonstrating the ability to apply economic reasoning to urban contexts.
Marginal	Demonstrates a basic understanding (Knowledge level) by outlining fundamental urban economic topics, with limited explanation, examples, or connections to real-world urban issues.	Demonstrates limited analysis (Comprehension level) with a weak or incomplete argument and minimal evaluation of evidence, indicating only a rudimentary grasp of the issues discussed.
Fail	Shows minimal understanding of urban economic concepts, with little or no connection to relevant theories, models, or urban applications, and a lack of coherent explanation.	Lacks analysis (Knowledge level), with no clear argument or meaningful evaluation of evidence, demonstrating a substantial lack of understanding of urban economic issues.