ECON 5670 Urban Economics
Summer 2025

Hong Kong University of Science and Technology

Department of Economics

Instructor	Deyu RAO dyrao@ust.hk
Lecture	Mon/Wed/Fri 02:00PM - 05:20PM @ Rm 2464
Office Hours	By appointment. Preferred around/over lunch (noon ± 1h) on Mon/Wed/Fri @ LSK 6072
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 his/her own copy. The first one is theoretical. The second is empirical (coding). Submissions should be made online through Canvas.
- Midterm (25%): An in-class midterm exam will be scheduled, tentatively on July 2nd, covering topics and materials before the midterm. Venue: Rm 2464.
- Class participation (10%): Class participation will be measured from in-class mini-quizzes (or surveys, games). The mini-quizzes will have one or two questions and will be graded only on participation (i.e., not on your answers).

- Group Presentation (25%) and Paper/Report (25%): Students should form groups of 3-4 and work on one of the following topics.

  The final products include a group presentation at the end of semester, and a paper/report of 4-6 pages (12pt font, double space, excluding references, tables and figures).

  Groups should be formed by June 23 via Canvas' People page. Feel free to post on Discussions page to find group mates. Students will be randomly assigned otherwise.

  Presentations will be $\sim$ 20 min per group (including Q&A), held in class on July 9th

  The final report is due on July 16th (one week after presentation) and should be submitted through Canvas by one of your group members.

  Possible topics include

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

  In the context of this course, students are recommended to employ tools such as ChatGPT for the purpose of refining their final reports. These tools can prove instrumental in enhancing writing skills and facilitating idea generation. However, it is imperative to underscore the critical importance of upholding academic integrity throughout this process. The primary objective is for students to judiciously employ these language tools, ensuring that the ideas articulated in their final reports remain inherently their own.

Intended Learning Outcomes (ILOs)

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

- Understand the key concepts, principles, and models of urban economics
- Collaborate and communicate effectively in oral and written English on issues regarding urban economics
- Analyze the consequence of an urban policy and provide policy suggestions to governments and international organizations
- Develop an academic or career interest in urban economics

Note: For details of School Intended Learning Outcomes (SILOs) from the School of Business and Management (SBM), please refer to https://bmundergrad.hkust.edu.hk/academics/academic-programs/learning-outcomes.

Academic Honesty and Integrity

Honesty and integrity is a central value 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 to 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 (2 lectures)
  1. Introduction
  2. Benefit and cost of cities
  3. Monocentric city model
  4. Rosen-Roback model
- **Module 2**. Topics in urban economics (1 lecture)
  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 (2 lectures)
  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** 80 minutes in-class exam. Tentatively on July 2nd.
  - **Midterm Review** (if time allows).
  - **Group presentations** (1 lecture). On July 9th.

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