Introduction to Urban Sciences

Lecture 1

1.0 Syllabus, Lecture Themes and Objectives


Where are we?
Pisco
Peruvian Cocktails
Lisbon
Credit: Paulo Evangelista


Where are we?
WABASH AVENUE
JEWELERS ROW
Credit: Johannes Krupinski


Where are we?
Credit: Muhammadtaha Ibrahim Ma'aji

Where are we?

Credit: Joshua Fernandez

Where are we?

Credit: Harsh Kondekar

Life in cities is extremely diverse, but it is nevertheless predictable in many ways

We will build a fundamental understanding (and predictive models) of cities

around the world

rich and poor

stagnant and developing

throughout history

into the future

This is possible because there are general principles that explain what cities are and how they change

It is from this general analytical framework that we can also understand particular places and histories

Urban Science is dedicated to discovering, modeling and applying such principles

Summary

This course is a grand tour of conceptual frameworks, general phenomena, emerging data and policy applications that define a growing scientific, integrated understanding of cities and urbanization.

I hope this course will give you a new perspective of why we live in cities and why urban environments are so important, despite their challenges, to achieving all the difficult things we do in human societies. Above all I hope you learn to read cities in new ways and are able to imagine (and help plan) better futures out of the processes we will study.

Themes include: worldwide urbanization and the challenge of sustainability, classical models from geography, economics and sociology, cities as complex networks and what they predict, variation and statistics of urban quantities, measuring and understanding diversity and productivity, neighborhoods and human development, cities in history and the origins of settlements, the structure and dynamics of systems of cities big and small (such as the US), the origins of (economic) growth and change, the emergence of institutions and their functional roles in connected, interdependent societies.

‘Textbook’:

Introduction to Urban Science (MIT Press 2021)

Introduction to Urban Sciences

Objectives

To provide students with

- A deep, interdisciplinary knowledge of urban phenomena from a scientific perspective;
- A new framework and capacity to conceive systemic approaches and solutions to urban challenges;
- An introduction to urban evidence, data and (mathematical) methods;
- An appreciation of the unique and critical role of cities in human societies and in processes of massive change and development.

Grading and Logistics

Weekly assignments:

- **9 assignments in total (no final exam)**
- Each assignment typically has a choice of qualitative versus quantitative tasks
  - Qualitative rely on reading a book chapter or paper, discuss and generalize
  - Quantitative involve data and coding in python and/or mathematical analysis
- One week to complete, submission on canvas.
  - late submission: -1 point after missing the deadline -0.5 for every additional week.
- **Class participation**

TA and office hours

- TA: **Jordan Kemp** (PhD, Physics), office hours TBD

- **Luis Bettencourt**. Thursdays 2:30-3:30pm
  - zoom link: Pass Code: urban or schedule for in-person at **Erman 210**.

Introductions

- your name & major/minor or interest
- place where you grew up / call home (if you don’t mind sharing).
- what do you hope for from this course?