ECON 0150 | MiniExam 03 + 04 | Spring 2025

This MiniExam will take 15 minutes with a quick break to follow. MiniExams are designed to both test your knowledge and challenge you to apply familiar concepts in new environments. Treat it as if you're trying to show me that you understand the material. Answer clearly, completely, and concisely.
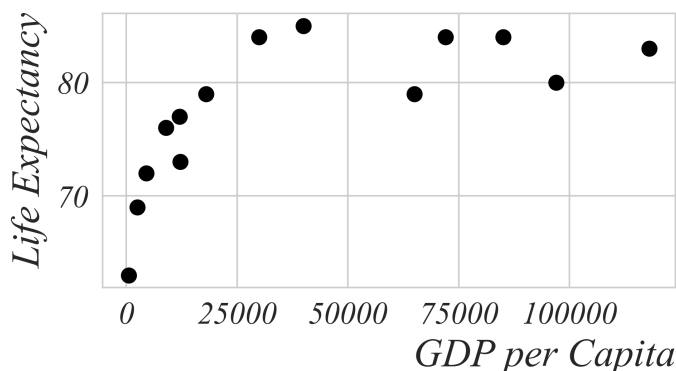
Academic Conduct Code

The following academic conduct code is designed to protect the integrity of your work. Print your name/initials beside the three academic honesty agreements. I pledge to my fellow students, the university, and the instructor, that:

_____ I will complete this MiniExam solely using my own work.
_____ I will not use any digital resources unless explicitly allowed by the instructor.
_____ I will not communicate directly or indirectly with others during the MiniExam.

Q1. The following scatter plot shows GDP per capita against Life Expectancy for different countries:

a) In one sentence, describe the overall pattern you observe.

b) If you wanted to make the relationship more linear, what transformation would you apply? Explain why in one sentence.

Q2. You have monthly unemployment data for three regions (North, South, Central) from 2020-2024, and you notice the following:

- The North region shows strong seasonal patterns

- The South region has an upward trend

- The Central region is relatively stable

Use one sentence to explain which visualization technique would best visualize all these patterns simultaneously.

Q3. You have a dataset about Chicago public parks with four variables: Park name and type (playground, sports field, nature area, etc.); Zipcode for each park; Zipcode centroid; Population of the park's zipcode. You have another dataset with coordinates of the Lake Michigan shoreline.

a) After creating a map, if you wanted to examine whether parks are more common in zipcodes closer to Lake Michigan, how would you process and visualize the data? Answer in one sentence.

b) What type of visualization would you use to see if certain types of parks (playground, sports field, etc.) tend to be more common at different distances from the lake? Answer in one sentence.

Q4. The following data shows company revenue and marketing spend:

Quarter	Revenue (M)	Marketing (M)
Q1	10	2
Q2	15	3
Q3	12	2.5
Q4	20	4

a) What type of plot would you use to examine the relationship between marketing spend and revenue? Explain in one sentence.

b) Draw a rough sketch of this plot (to the right ->).

c) What pattern do you observe? Explain in one sentence.

Q5. You have annual temperature data for 50 cities, but the cities range from very small (population 50,000) to very large (population 15 million). You want to examine if larger cities tend to have higher temperatures.

a) What visualization would you use? Explain in one sentence.

b) Would you transform either variable? If so, explain why in one sentence.