

# Social Science Inquiry II

## Week 1: Course introduction

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# Overview

This course:

- Part of a sequence
  - Fall: research design
  - Winter: methods
  - Spring: practical applications

Did you take SOSC 13100 in fall quarter of 2025 (or an earlier year)?

Main take-aways from fall quarter?

## Course objectives

- Students will approach data thinking like a social scientist; i.e., thinking about what data inputs are, how they're measured, relationships among variables, thinking about data generating processes when making inferences
- Build on foundations of descriptive and causal inference introduced in fall SSI I, with respect to both experimental and observational data
- Have facility with basic statistical tests and methods
- Have facility with basic statistical software programming and data visualization

# Course objectives

By the end of the quarter, you should be able to ...

- Formulate a falsifiable research “hypothesis”
- Determine what evidence (data, statistical tests) you would need to falsify that hypothesis
- Interpret results from statistical analysis
- Run basic statistical analysis in R

# Overview

What about qualitative research methods?

- Data can be both quantitative and qualitative.
- Principles of research design can be shared across methodological approaches.

# Overview

- High level: how to answer questions with data
- Summarizing univariate and multivariate data numerically and visually, data exploration
- Probability as a model of the world
- Formalizing our uncertainty about that model, using statistics
- What it requires to infer causal relationships
- Linear regression (and inference with)
- Beyond linear regression: other statistical methods

# What we do with data

We'll get started on working with data, and we'll also get started on thinking critically about how you use data to answer questions.

What data would you need to make the argument in the article below?



## More officer diversity won't cut racial disparity in US police shootings - study

**Research found as percentage of black officers who fired in fatal shootings increased, the citizen shot was more likely to be black**

**Miranda Bryant in New York**

Mon 22 Jul 2019 17.56 EDT

## Inferential questions

- What can the data you *do* have tell you about data you *don't* have?
- What data would you need to answer questions about *what would have happened?*
- What can we say about our *uncertainty* about estimates or predictions?

# Statistical software

## Programming in R.

- Assuming you're starting from scratch.
- But if you do have some programming skills, with statistical software, python, or other languages, there can be a lot of carryover.
- If you don't have any baseline skills, focus on the rstudio primers  
<https://rstudio.cloud/learn/primers>

## Reference texts

[See syllabus ]

# Asking and answering questions

- Google!
- Ask on our course StackOverflow team:  
<https://stackoverflownewteams.com/c/sosc13200-26-3> [I'll send invites shortly]
- Use general StackOverflow (<https://stackoverflow.com/>) for R questions or CrossValidated (<https://stats.stackexchange.com/>) for stats.
- Use Claude Code—our class has access to it!—for coding help as well.

Class participation includes asking and *answering* questions on the class StackOverflow.

# Assessment

- Homework: 24 points
- Participation: 13 points
- Midterm (in class): 18 points
- Final (in person): 30 points
- Final (take home): 15 points

# Homework

- If you find errors in the solution set, post them on the class StackOverflow and you will get extra credit
- For homework assignments, always submit *both* your .R file showing your work, and a compiled .pdf file on Canvas.

# Homework grading

check(+/-)

- Check: You fully completed the assignment, and submitted all components. (A)
- Check plus: You went above and beyond, your solutions were clear and detailed. (A+)
- Check minus: You made an attempt, but it wasn't complete. Maybe you didn't submit all components, or didn't fully answer some of the questions. (B or C)
- Unmarked: You did not submit enough of an assignment for credit.

## Assignment for Friday

- Download software—including Claude Code, if you are using it—on your own computer.
- Set up your working directory.
- Compile and submit a report.

# Github

- <https://github.com/UChicago-pol-methods/SOSC13200-W26>
- Serves as a repository for class documents.
- You don't need a GitHub account, nor do you need to know how to use git.
- But if you *do* find mistakes in slides or homeworks, you can also get extra extra credit for submitting a pull request on GitHub with revisions.

Other questions/concerns about class policies?

# Getting started in R

[ R script ]