Introduction to the course

PSCI 2301: Quantitative Political Science II

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Today's agenda

1. Introduce myself and the course

2. Go through the syllabus

3. Review necessary software

Introductions

About me

Some background:

- "Kenkel" rhymes with "sprinkle" 🧁
- Grew up in Northern Kentucky, near Cincinnati
- Philosophy and political science major at University of Kentucky (2008)
- PhD in political science from University of Rochester (2014)
- On the Vanderbilt faculty since 2014
- Research + classes on international relations, game theory, statistics

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Office hours: Tuesday 2-4pm, Commons 326, no appointment needed

About PSCI 2301

The main topic of this course is causal inference

Political scientists, policy analysts, decision makers, regular people —
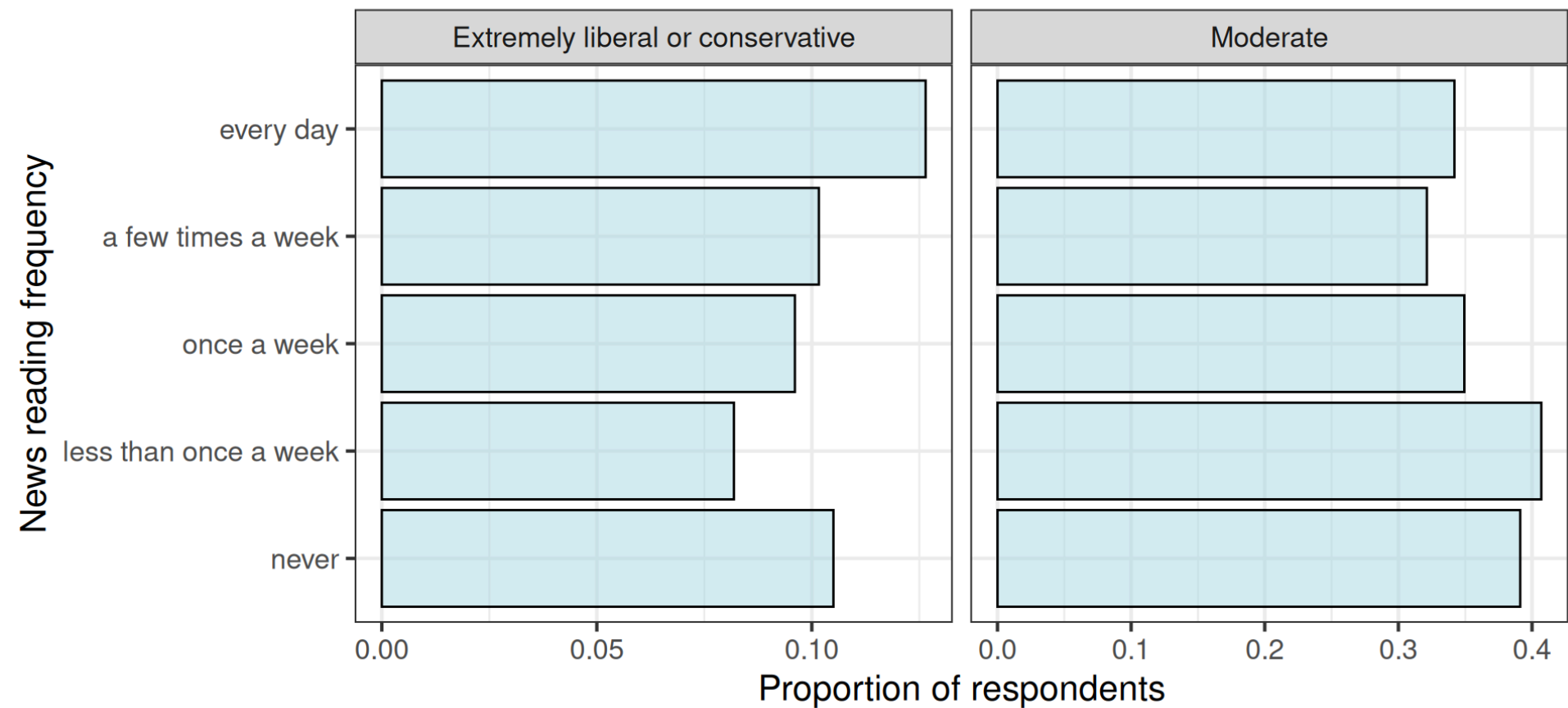all need to answer causal questions

- How much does a party help (or hurt) its general election chances by
  nominating a moderate?

- How much do get-out-the-vote mailers increase turnout?

- To what extent do border walls reduce contraband smuggling?

- How much will a law degree increase your earning potential?

- Will eating bacon give you cancer?

We'll study the statistical approach to answering questions like these

Why causal questions are hard to answer

Does following the news closely make a person more likely to have extreme political views?

News reading and political extremism in the 2022 GSS

Why causal questions are hard to answer

Why can't we just compare those who follow the news to those who don't?

What we want to know: If we took the **same people** and changed their news consumption, how would their views change?

But the news followers and non-followers are **different people**

One correlation, many viable explanations

1. Maybe following the news really does polarize people
2. Maybe already-extreme people are more interested in the news
3. Maybe some other factors—education, income, personality type—shape both news consumption and extremism
4. Maybe all of these are true!

What we're going to do

The statistical approach to causal inference

We can't observe the same people as news followers and non-followers

But we can try to compare groups that are as similar as possible

- Experimental: Randomly assign who does and doesn't follow
- Observational: Measure confounding variables and use statistical adjustments to eliminate their influence
- Hybrid: Isolate **seemingly random** differences in news consumption

Most current research — and much of this course — uses the hybrid approach to causal inference

The syllabus

Is this course right for you? A checklist

- ☐ You're interested in using data to answer causal questions
- ☐ You have a working familiarity with R from DS 1000 or PSCI 2300
- ☐ You're comfortable with math at the level of high school algebra
- ☐ You're willing to invest substantial time out of the classroom to learn the material
- ☐ You're eager to write a research paper that will require significant work and advance planning
- ☐ You're okay with uncertainty and are willing to revise your beliefs

Readings

Required book:

JOSHUA D. ANGRIST & JÖRN-STEFFEN PISCHKE

MASTERING 'METRICS

THE PATH FROM CAUSE TO EFFECT
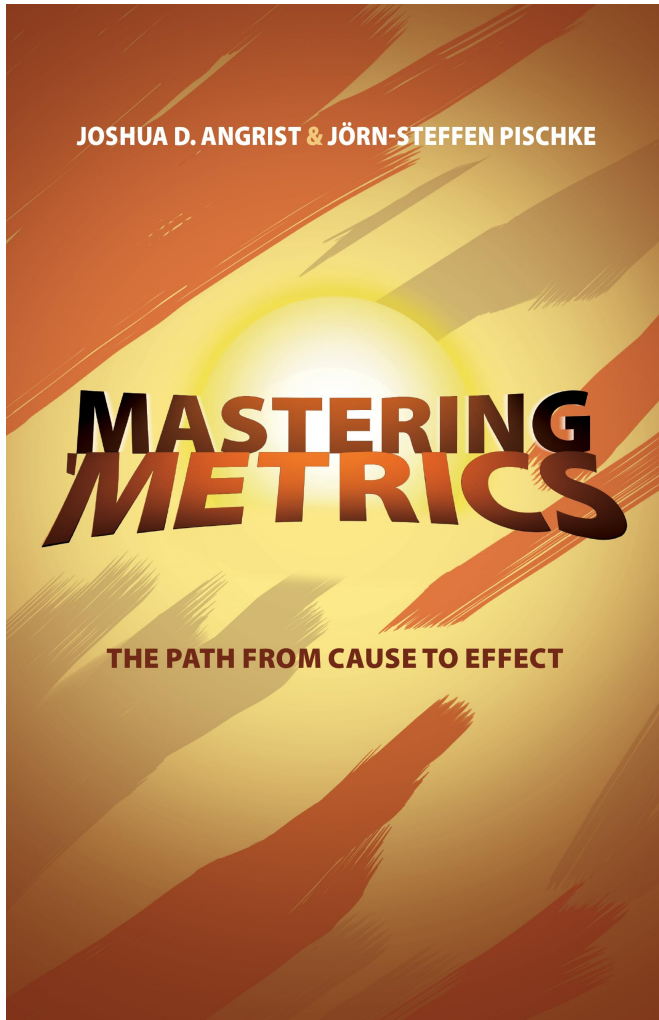
Typical weekly reading schedule

1. Chapter of *MM*, or similar stats content
2. Polisci article applying those methods

How I'd approach weekly readings

- Skim all before Monday's class
- Polisci article first, then stats stuff
- Note questions for class/Brightspace discussions
- Go back and do a deeper reread after Wednesday's class

Problem sets

Five sets, roughly evenly spaced over the semester

Not just code — you'll need to think about causal relationships

Learning by doing ⤳ expect a **substantial time investment** on each set

Lowest score dropped, other four each worth 12.5% of grade

One-time-use, 72-hour extension policy

Peer collaboration allowed, but turn in your own writeup, no rote copying

Final research project

You'll use statistics to answer a causal question about politics

Final paper will be a scientific report, in the style of the polisci readings

No page requirement, but I imagine you'll end up around 20 pages

- February 28: Proposal for topics and data (10% of final grade)
- March 28: Complete first draft (10%)
- April 14/16: In-class presentation (5%)
- April 23: Final paper (20%) and revision memo (5%)

Start looking into topics and data availability asap
(seriously, do not procrastinate on this)

Generative AI policy

You can use ChatGPT, vanderbilt.ai, etc., in any capacity

Think of AI as a complement to learning, not a substitute

You are ultimately responsible for whatever you turn in

My personal experiences with generative AI in a stats/research setting

- Writing code 🙂 (especially with Copilot)
- Answering code questions 🙂
- Critiquing and correcting my prose writing 😐
- Writing prose on its own 😖
- Coming up with research topic ideas 🤮

Extra credit

Ways to earn up to 3% extra credit

1. Post questions on Brightspace discussions
2. Answer other people's questions on Brightspace discussions
3. Regularly ask questions in class

Software

R and RStudio

R download: https://cran.rstudio.com/

RStudio download: https://posit.co/download/rstudio-desktop/

Required R setup: (only need to run once)

```
install.packages("tidyverse")
install.packages("tinytex")
tinytex::install_tinytex()
```

Pretty much all stats in this course could also be done in Python, but R still most common in political science

Quarto

Quarto $\approx$ R Markdown + additional features + Python compatibility

Download link: https://quarto.org/docs/download/

You'll complete problem sets using Quarto

Lecture slide Quarto code at https://github.com/brentonk/psci2301_slides

Wrapping up

To do for next time

1. Get all software installed

2. Double check that you can render `hello_world.qmd` to PDF

3. If you need an R refresher, look at intro R notes from PSCI 2300 posted for this week on Brightspace