## Welcome to Math Camp (2020)

## Dept. of Political Science University of Wisconsin–Madison

Instructors:
Marcy Shieh and Anton Shirikov

August 17, 2020

### Math and Political Science

(Political Science and Math)

## Why math?

Math is explicit and specific

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Discover hidden insights

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Even if you don't do highly mathematical work, you will encounter it

Principled measurement methods

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Make judgments about *statistically meaningful* findings (vs. random noise)

Make causal inferences

Define sets of actors, preferences, incentives

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Derive actors' strategies for optimal payoffs

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Dealing with limited information, probabilistic beliefs, learning from new information

Operationally...

#### Operationally...

- Preparation for methods courses
- Practicing essential arithmetic routines

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- Intuitive, conceptual understanding is most important

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You won't memorize everything we cover this week,

but you need to be able to "roll with it" in class

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- Different areas of research emphasize different areas of math (and specialization is the norm)
- You get out what you put in

### Questions so far?

## Agenda

### Mornings (9–12ish): math lessons

Lecture slides, definitions, examples

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#### Afternoons (1–3ish): practice

Take-home exercises will be distributed

Instructors will be present to work through problems

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#### Contact your instructors at any time

(But you should feel free to ask questions throughout)

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- Useful for manipulating real data
- How to use basic commands in R

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• Quiz for Adeline to get a sense of how comfortable you are with math

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### Friday: Probability (Anton), Methods Q&A

- Mathematical intuitions of independent and conditional probability
- Probabilistic processes (random variables), patterns in "real data"

## **Deliverables?**

Daily exercises (not collected)

No final exam (or grades of any kind)

You are in charge of yourselves

**Questions?** 

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### Let us (Anton and me) know how we can make this work better

- Ask lots of questions! They help the entire class!
- Slow us down
- Ask why we are learning something

## Resources

### The Github repository:

- Slides, exercises
- Source code to build it all

#### Other resources:

- View last year's materials
- Gill, Essential Mathematics for Political and Social Research
- Moore & Siegal: A Mathematics Course for Political & Social Research

# **About your instructors**

# **Marcy Shieh**



Originally from California (SF Bay Area)

Studies American politics & political methodology (since 2017)

Judicial politics, campaign rhetoric, institutions

Methological focus: text analysis and experiments

Email: mshieh2@wisc.edu

## **Anton Shirikov**



Originally from Russia. Switched back and forth between journalism and academia, but finally settled on the latter

Studies comparative politics & political methodology (since 2015)

Authoritarian politics, media, propaganda, legacies of communism

Methodological focus: experiments

Email: shirikov@wisc.edu

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# Let's get started