Welcome to Math Camp (2020)

Dept. of Political Science
University of Wisconsin–Madison

Instructors:
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Math and Political Science

(Political Science and Math)

Why math?

In general...

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Formalizing: lay out premises and assumptions, derive implications

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Discover hidden insights

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

For empirical research
(data analysis...)

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Principled measurement methods

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Make causal inferences

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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

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Operationally...

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- Preparation for methods courses
- Practicing essential arithmetic routines

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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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- 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)

Monday: Essential algebra and pre-calculus (Marcy)

- Fundamentals, notation, functions

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Thursday: Finish calculus (Anton), Quiz

- 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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- 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

Acknowledgements

Let's get started