

Welcome to Math Camp (2018)

Dept. of Political Science

University of Wisconsin–Madison

Instructors:

Michael DeCrescenzo and Micah Dillard

August 20, 2018

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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Formalizing: lay out premises and assumptions, derive implications

Discover hidden insights

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

For formal models
(game theory...)

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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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Just kidding

Contact your instructors at any time

(But you should feel free to ask questions throughout)

Monday: Essential algebra and pre-calculus (Mike)

- Fundamentals, notation, functions

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Thursday: Finish calculus, Probability (Micah/Mike)

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

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Friday: Finish probability, Maybe computer fun (Mike/Micah?)

- Potentially: fundamentals of data in the computer (using R)

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

Mike DeCrescenzo



Roots in St. Louis and Kansas City, Missouri.
Short stints in Berkeley, CA

Studies American politics & political
methodology (since 2014)

Primary elections, gender and voting, voter
identification requirements

Comparative advantage: Bayesian analysis
(probability and statistics)

Email: decrescenzo@wisc.edu

Micah Dillard



A proud Ohio son (Columbus)

Studies international relations & political methodology (since 2014)

Economic sanctions, energy and foreign policy, non-traditional security

Comparative advantage: Formal theory (algebra and calculus)

Email: micah.dillard@wisc.edu

Let's get started