

# MATH CAMP

Summer 2016

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## 1 Course Description

The five sessions of Math Camp will cover the key concepts and theories in basic algebra, linear algebra, and calculus, underlying most work in quantitative political research. Each session consists of a 90-minute lecture and a 30-minute discussion over a problem set. You are recommended to try working out the problems on your own before the session.

## 2 Textbook and Resources

Moore, Will and David Siegel. 2013. *A Mathematics Course for Political and Social Research*. Princeton University Press.

This book can be accessed online through the UI library website. There is a YouTube channel consisting of videos on every topic covered in the book.

<https://www.youtube.com/channel/UCrA2SLUKnV6yjdgIfDwFeGg/playlists>

- o Other Suggested Readings

- Hagel, Timothy. 1995. *Basic Math for Social Scientists: Concepts*. Sage Publications.

- Gill, Jeff. 2006. *Essential Mathematics for Political and Social Research*. Cambridge University Press.

- o Video Resources

- Khan Academy

- <https://www.khanacademy.org/>

- MIT Video Courses

- <http://ocw.mit.edu/courses/audio-video-courses/>

## 3 Schedule

(1) August 15, Monday Building blocks

- o 10:00am - noon: Notations, operators, and sets

- o 1:30pm - 3:30pm: Exponents, logarithm, and functions

- o *Reading: Moore & Siegel, Chapter 1, 3*

(2) August 16, Tuesday Linear algebra and Calculus

- o 10:00am - noon: Vectors and matrices

- o 1:30pm - 3:30pm: Differentiation

- o *Reading: Moore & Siegel, Chapter 5, 6 & 12*

(3) August 19, Friday More Calculus

- o 10:00am - noon: Integration

- o *Reading: Moore & Siegel, Chapter 7*