Mathematical Methods for Social Science
Summer 2022

Course Information

- **Instructor** Kisoo Kim (kisoo@uchicago.edu)

- **Class Meeting** We will meet daily 9:30 - 11 am at Keller Center (Classroom to be announced) through Aug. 29th - Sep. 16th, except for weekends and Labor Day. The lectures will be broadcast on Zoom synchronously.

- **Office Hour** By appointment.

- **Teaching Assistant**: Steve Kim (kimsy@uchicago.edu)

- **TA Review Session**: 11:30 am - 12:30 pm at Keller Center. The sessions will also be broadcast on Zoom synchronously. We will not have a TA review session on the first day (Aug. 29th).

**Overview** This course aims to prepare students to succeed in the Harris PhD core courses, and provide a foundation for further studies. The course aims to provide a self-contained material.

**Plan** The course covers topics relevant to the study of applied economic theory and econometrics, following the tentative course outline below. The outline is subject to change.

- Logic and Proofs ................................................................. Day 1
- Mathematical Preliminaries .................................................. Day 2
- Calculus 1 ................................................................. Day 3
- Calculus 2 ................................................................. Day 4
- Real Analysis 1 ............................................................. Day 5
- Real Analysis 2 ............................................................. Day 6
- Real Analysis 3 ............................................................. Day 7
- Linear Algebra 1 ............................................................. Day 8
- Linear Algebra 2 ............................................................. Day 9
- Linear Algebra 3 ............................................................. Day 10
- Optimization 1 ............................................................... Day 11
- Optimization 2 ............................................................... Day 12
- Probability and Statistics 1 ............................................. Day 13
- Probability and Statistics 2 ............................................. Day 14

Homework will be distributed after each lecture, but it is not for submission nor grading. The solution will be discussed in the TA sessions.

**References** The course material consists of an eclectic collection from the following list.


