

Undergraduate Math Camp for Intermediate Economics Students

Georgetown University — Summer 2023

Class Information

Dates: Aug 09, 2023 – Aug 15, 2023

Days: Wednesday, Thursday, Friday, Monday, and Tuesday (WRFMT)

Time: 10:30 am – 12:00 pm and 1:30 pm – 3:00 pm EST

Classroom: <https://georgetown.zoom.us/j/95505040328>

All lectures will be recorded and made available via Canvas on ShareStream Pick-n-Play.

To be added to the course Canvas site, please email the instructor using information provided below.

Instructor Information

Name: Yağmur Menzilioğlu

Office: <https://georgetown.zoom.us/j/95505040328>

Email: ym406@georgetown.edu

Office Hours: By appointment

Course Description

The optional virtual Math Camp is for undergraduate students in their first or second years who have completed economic principles courses and are about to take intermediate economics courses. The math camp will review mathematical concepts used in intermediate classes and equip students with resources that could be useful when they need additional math help. Students will develop a strong foundation in mathematical concepts relevant to economics through a balance of theory, application, and problem-solving.

Course Outline

Morning sessions will be in lecture format, reviewing a mathematical concept, and afternoon sessions will discuss applications of the mathematical concept in economics. The instructor will deliver daily sessions through Zoom (synchronously) and distribute session recordings through Canvas (asynchronously).

Day 1: August 09, 2023 (Wednesday)

- Single-variable functions and their properties: linear, quadratic, exponential, and logarithmic
- Graphing functions

Day 2: August 10, 2023 (Thursday)

- Equations and inequalities: solving for unknowns, graphing, and interpreting solutions
- Slopes and rates of change

Day 3: August 11, 2023 (Friday)

- Differentiation of functions with one variable
- Optimization with one variable: finding maxima and minima
- Second derivatives: concavity and inflection points

Day 4: August 14, 2023 (Monday)

- Set theory and mathematical notation in economics
- Integration of functions with one variable
- Basic probability concepts and distributions

Day 5: August 15, 2023 (Tuesday)

- Functions and equations with more than one variable
- Solving systems of equations
- Differentiation and optimization of functions with two variables

References & Resources

There is no required textbook for this course. However, the following references and resources are recommended for additional reading:

- Asano, Akihito. *An Introduction to Mathematics for Economics*. Cambridge University Press, 2013.
- Bradley, Teresa, and Paul Patton. *Essential Mathematics for Economics and Business*. John Wiley & Sons Ltd, 2002.
- Refresher Mathematics for Economics. Accessed August 5, 2023. https://economicsnetwork.ac.uk/maths_refresher/.
- (Advanced) Hoy, Michael, John Livernois, Chris McKenna, Ray Rees, and Thanasis Stengos. *Mathematics for Economics*. MIT Press, 2011.