

Econ 204
Mathematical Tools for Economists
Summer/Fall 2020

Econ 204 is online only in 2020. All times below are Pacific Daylight Time (Berkeley time).

Instructors

Chris Shannon
511 Evans Hall
cshannon@econ.berkeley.edu

Office hours:
11:30 – 12:30 (end of lecture + 1hr) MTWThF
other times by appointment

Farzad Pourbabaee
farzad@berkeley.edu

Damian Vergara
damianvergara@berkeley.edu

Office hours for Farzad and Damian:
MTWThF 3:00-5:00 pm

Course Material

The course will cover Chapters 1-5 and part of Chapter 6 of *Mathematical Methods and Models for Economists* by Angel de la Fuente. Additional material will be covered from several handouts.

Class website http://elsa.berkeley.edu/users/cshannon/e204_20.html

bCourses site: <https://bcourses.berkeley.edu/courses/1494359>

Course Schedule

The course runs from July 27 – August 19.

Lectures: MTWThF 9:00 – 11:30 am, July 27 – August 14

Note: We will often run past 11:30, so do not schedule anything else between 11:30 and 12:00.

Discussion Sections: MTWThF 1:00 – 3:00

All lectures and discussion sections will be held live on Zoom, and also recorded and posted for students to view later. Links for participating live or viewing recorded lectures and discussion sections will be available only in bCourses. Students must register to have access to the 204 bCourses site.

Final Exam: Wednesday August 19

details regarding exam format will be discussed in class

Course Requirements

Lectures will cover theory; the discussion sections will review the lectures, introduce additional material, and discuss problem sets. All students should attend the discussion sections and will be responsible for the material discussed in the sections.

There will be a total of six problem sets, due according to the following schedule:

- Problem set 1: due Friday July 31
- Problem set 2: due Tuesday August 4
- Problem set 3: due Friday August 7
- Problem set 4: due Tuesday August 11
- Problem set 5: due Friday August 14
- Problem set 6: due **Monday August 17**

Students are encouraged to work in study groups. Students must turn in their own solutions in their own handwriting (or typed individually), however.

Because of the importance of posting solutions and grading problem sets promptly, **no late problem sets will be accepted**. There will be no exceptions to this rule. The problem set grade will be based on the 5 highest grades among the 6 problem sets. This allows for missing one problem set without penalty.

Grading

The grade for Econ 204 will be based on problem set scores and the final exam, according to the following formula:

Problem sets	10%
Final exam	90%

Prerequisites

Math 1A – 1B and Math 53 – 54, or equivalent

Course Outline

References below are to sections in de la Fuente. Lecture notes may contain additional material not contained in the textbook.

Lecture 1 Monday July 27

dIF 1.2-1.3, begin 1.4 (see Corrections handout), Set Formation and Axiom of Choice handouts (read dIF section 1.1 on your own)

Lecture 2 Tuesday July 28

dIF 1.4, 1.5-1.6 (read 1.7-1.8 on your own)

Lecture 3 Wednesday July 29

dIF 2.1-2.3, handout on lim sup and lim inf

Lecture 4 Thursday July 30

dIF 2.4, begin 2.6 (read 2.5 on your own)

Lecture 5 Friday July 31

dIF 2.6, 2.7

Lecture 6 Monday August 3

dIF 2.8

Lecture 7 Tuesday August 4

dIF 2.9, 2.11 (read 2.10 on your own)

Lecture 8 Wednesday August 5

dIF 3.1–3.3

Lecture 9 Thursday August 6

dIF 3.3, 3.5 – 3.6 and handouts on Matrix Representation, Diagonalization and Quadratic Forms

Lecture 10 Friday August 7

dIF 3.6, 3.4, Diagonalization and Quadratic Forms

Lecture 11 Monday August 10

dIF 4.1-4.3, 4.4 and Taylor Theorem handout (read 4.5 on your own)

Lecture 12 Tuesday August 11

dIF 4.3, begin 5.2

Lecture 13 Wednesday August 12

dIF 5.2, 5.3, 6.1(d)

Lecture 14 Thursday August 13

Handout on Difference and Differential Equations

Lecture 15 Friday August 14

Handout on Difference and Differential Equations