Econ 204
Mathematical Tools for Economists
Summer/Fall 2023

Instructors

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

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Office hours for Bruno and Anna:
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 https://eml.berkeley.edu/~cshannon/e204_23.html

bCourses site: https://bcourses.berkeley.edu/courses/1526483

Course Schedule
The course runs from July 24 – August 16.

Lectures: MTWThF 9:00 – 11:30 am, July 24 – August 11
> **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, July 24 – August 11

Students must register to have access to the 204 bCourses site. Please see link on the course website to register.

Final Exam: Wednesday August 16, 9:00 am – 12pm
> details regarding exam 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 28
> Problem set 2: due Tuesday August 1
> Problem set 3: due Friday August 4
> Problem set 4: due Tuesday August 8
> Problem set 5: due Friday August 11
> Problem set 6: due **Monday August 14**

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 24
dlF 1.2-1.3, begin 1.4 (see Corrections handout), Set Formation and Axiom of Choice handouts (read dlF section 1.1 on your own)

Lecture 2   Tuesday July 25
dlF 1.4, 1.5-1.6 (read 1.7 on your own)

Lecture 3   Wednesday July 26
dlF 2.1-2.3, handout on lim sup and lim inf

Lecture 4   Thursday July 27
dlF 2.4, begin 2.6 (read 2.5 on your own)

Lecture 5   Friday July 28
dlF 2.6, 2.7

Lecture 6   Monday July 31
dlF 2.8

Lecture 7   Tuesday August 1
dlF 2.9, 2.11 (read 2.10 on your own)

Lecture 8   Wednesday August 2
dlF 3.1–3.3

Lecture 9   Thursday August 3
dlF 3.3, 3.5 – 3.6 and handouts on Matrix Representation, Diagonalization and Quadratic Forms

Lecture 10   Friday August 4
dlF 3.6, 3.4, Diagonalization and Quadratic Forms

Lecture 11 Monday August 7
        dlF 4.1-4.3, 4.4 and Taylor Theorem handout (read 4.5 on your own)

Lecture 12 Tuesday August 8
        dlF 4.3, begin 5.2

Lecture 13 Wednesday August 9
        dlF 5.2, 5.3, 6.1(d)

Lecture 14 Thursday August 10
        Handout on Difference and Differential Equations

Lecture 15 Friday August 11
        Handout on Difference and Differential Equations