

## **Econ 204, Mathematical Tools for Economists, Summer/Fall 2024**

### **Instructor**

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Office hours: MTWThF, 12noon-1pm, Evans 517

### **GSI's**

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### **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. All additional course materials (handouts, slides, lecture notes, problems sets) will be available on the bCourses website.

### **Course Schedule**

The course runs from July 22 – August 14.

*Lectures:* MTWThF, 9am-12noon, July 22 – August 9, Davis 534. (The 101 “section” will be part of the 3-hour lecture block)

*Sections:*

102: MTWThF 1-2:30pm, Dwinelle 243

103: MTWThF 2:30-4pm, Dwinelle 243

*Final Exam:* Wednesday August 14, 9am-12noon, Location TBD.

## **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 26
- Problem set 2: due Tuesday, July 30
- Problem set 3: due Friday, August 2
- Problem set 4: due Tuesday, August 6
- Problem set 5: due Friday, August 9
- Problem set 6: due Wednesday August 14

Problem sets will be graded for your feedback only. That is, the problem set grades won't be taken into consideration in computing the final course grades. Make sure you solve the assigned problem sets on time and submit them by their respective due date to receive feedback on your solutions. This is an indispensable part of preparing for the final exam.

## **Grades**

The grade for Econ 204 will be based on the final exam only.

## **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 22:* 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 23:* dIF 1.4, 1.5-1.6 (read 1.7-1.8 on your own)

*Lecture 3 Wednesday July 24:* dIF 2.1-2.3, handout on lim sup and lim inf

*Lecture 4 Thursday July 25:* dIF 2.4, begin 2.6 (read 2.5 on your own)

*Lecture 5 Friday July 26:* dIF 2.6, 2.7

*Lecture 6 Monday July 29:* dIF 2.8

*Lecture 7 Tuesday July 30:* dIF 2.9, 2.11 (read 2.10 on your own)

*Lecture 8 Wednesday July 31:* dIF 3.1–3.3

*Lecture 9 Thursday August 1:* dIF 3.3, 3.5 – 3.6 and handouts on Matrix Representation, Diagonalization and Quadratic Forms

*Lecture 10 Friday August 2:* dIF 3.6, 3.4, Diagonalization and Quadratic Forms

*Lecture 11 Monday August 5:* dIF 4.1-4.3, 4.4 and Taylor Theorem handout (read 4.5 on your own)

*Lecture 12 Tuesday August 6:* dIF 4.3, begin 5.2

*Lecture 13 Wednesday August 7:* dIF 5.2, 5.3, 6.1(d)

*Lecture 14 Thursday August 8:* Handout on Difference and Differential Equations

*Lecture 15 Friday August 9:* Handout on Difference and Differential Equations