

## ECO 394C Mathematics for Economists

Summer 2020

Instructor: Jim Wiseman

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Office hours: On Zoom - see Canvas for details

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Class schedule: The class will be online and asynchronous. Lecture videos are available on Canvas; details, including the recommended schedule, are below. The TAs and I will have multiple office hours (on Zoom) each week. There is a student homework/lecture discussion board on Canvas.

Textbook: Essential Mathematics for Economic Analysis, 5th ed., by Sydsaeter, Hammond, Strom, and Carvajal. (You do NOT need to purchase access to MyMathLab Global.)

Optional supplemental texts: Fundamental Methods of Mathematical Economics by Chiang and Wainwright, Mathematics for Economists by Simon and Blume, Schaum's Outline of Introduction to Mathematical Economics by Dowling.

Plan: We'll cover most of chapters 11-16. There's a more detailed list of topics below.

Exams: There will be one midterm exam and one final. The midterm will be Friday, July 31, online. The final exam is Saturday, August 15, online. Details to be announced on Canvas.

Homework: I will assign homework, on Canvas, for every section we cover. You do not need to turn it in, but you are responsible for the material. I encourage you to do as many of the unassigned problems as you have time for. Each homework assignment on Canvas includes a due date, to give you a sense of the pacing of the course.

Grading: 1/3 midterm exam, 2/3 final exam

Topics:

The dates are when we would have covered that material if we were meeting in person. I encourage you not to fall behind that pace, since you'll be responsible for the material on the midterm and final exams.

Lecture	Textbook sections	Date
1. Introduction	none (read 11.1, 11.3, 11.4, 15.7, & 15.8 before Lecture 2)	7/13
2. Dot product	15.7	7/13
3. Partial derivatives	11.2, 11.3, 11.5, 11.6	7/14
4. Partial derivatives in economics	11.7	7/14
5. Elasticity	11.8	7/15
6. Chain rule and implicit differentiation	12.1-12.4	7/15
7. Elasticity of substitution	12.5	7/16
8. Homogeneous functions	12.6, 12.7	7/16
9. Linear approximation & differentials	12.8-12.11	7/20
10. Local optimization	13.1, 13.3, 13.5	7/21
11. Global optimization	13.2, 13.4, 13.6	7/22
12. Envelope theorem	13.7	7/23
13. Lagrange multipliers introduction	14.1, 14.4	7/27
14. Lagrange sufficient conditions	14.2, 14.3, 14.5	7/28
15. Lagrange - multiple constraints	14.6	7/29
16. Lagrange - envelope theorem	14.7	7/29
<b>Fri 7/31</b>	<b>Midterm exam (covers lecture 1-16)</b>	

17. Inequality constraints	14.8	8/3
18. Multiple inequality constraints	14.9	8/4
19. Nonnegativity constraints	14.10	8/4
20. Linear algebra - introduction	15.1, 15.2	8/5
21. Matrix multiplication	15.3	8/5
22. Matrix powers	15.4	8/6
23. Transpose and symmetry	15.5	8/6
24. Gaussian elimination	15.6	8/10
25. Determinants	16.1-16.5	8/10
26. Inverses	16.6	8/11
27. Computing inverses	16.7	8/11
28. Least squares with linear algebra	none (see notes on Canvas)	8/12
29. Solutions and the Leontief model	16.8, 16.9	8/13
<b>Sat 8/15</b>	<b>Final exam (cumulative)</b>	

University policies:

Honor code: “The core values of the University of Texas at Austin are learning, discovery, freedom, leadership, individual opportunity, and responsibility. Each member of the University is expected to uphold these values through integrity, honesty, trust, fairness, and respect towards peers and community.”

Any student with a documented disability (physical or cognitive) who requires academic accommodations should contact the Services for Students with Disabilities area of the Office of the Dean of Students at 471-6259 (voice) or 471-4641 (TTY for users who are deaf or hard of hearing) as soon as possible to request an official letter outlining authorized accommodations.

Students who violate University rules on scholastic honesty are subject to

disciplinary penalties, including the possibility of failure in the course and dismissal from the University. Since dishonesty harms the individual, fellow students, and the integrity of the University, policies on scholastic dishonesty will be strictly enforced.

Occupants of buildings on The University of Texas at Austin campus are required to evacuate buildings when a fire alarm is activated. Alarm activation or announcement requires exiting and assembling outside. Familiarize yourself with all exit doors of each classroom and building you may occupy. Remember that the nearest exit door may not be the one you used when entering the building. In the event of an evacuation, follow the instruction of faculty or class instructors. Do not re-enter a building unless given instructions by the following: Austin Fire Department, The University of Texas at Austin Police Department, or Fire Prevention Services office.

Students requiring assistance in evacuation shall inform their instructor in writing during the first week of class.

Behavior Concerns Advice Line (BCA)L: 232-5050