

ECON 4930 – MATHEMATICAL ECONOMICS

ECON 6030 – INTRODUCTION TO MATHEMATICS FOR ECONOMICS

Semester: Fall 2017

Time/Place: 5:30-6:45pm TR, Kell Hall 101

Instructor: Faraz Farhidi

Office: Andrew Young School of Policy Studies ([AYSPS](#)) is located at the intersection of Marietta and Peachtree Streets; my cubicle 565K is on the 5th floor, take a left off the elevators.

Office Hours: 4:15-5:15pm Tuesdays and Thursdays; and/or by appointment

Email Address: ffarhidi1@gsu.edu

Prerequisite: Math 1111 or equivalent (basic college algebra), ECON 2105, and ECON 2106, or consent of instructor.

Text/Materials: *Essential Mathematics for Economic Analysis*, 4th edition, by Knut Sydsaeter & Peter Hammond is required. The textbook website is <http://catalogue.pearsoned.co.uk/educator/product/Essential-Mathematics-for-Economic-Analysis/9780273760689.page> .

Other:

- Access to GSU's learning management system, iCollege, is required. It is recommended that students check the iCollege course website at least once between class meetings. Students may set up notifications in iCollege so that they are automatically alerted to new iCollege emails and announcements. iCollege can send such notifications to an email account of their choice. Student help for iCollege can be found [here](#).
- Grades are posted on iCollege. At any point during the semester, students are able to log on and check their current course grade.
- Please check your email at least once per day. Most emails sent to the class will be sent via iCollege, and they should be automatically forwarded to students' GSU email addresses. To reply to an email sent by the instructor via iCollege, the student must either 1) log into iCollege to reply, or 2) reply via their email but replace the "to" address with the instructor's GSU email address.
- A calculator (for exams and class assignments) is recommended.

Learning Objectives for ECON 4930/6030:

1. The student should be able to define a function and graph simple functions such as linear functions, quadratic functions, exponential functions, and logarithmic functions.
2. The student should be able to solve basic algebraic equations.
3. The student should be able to identify some basic properties of a function such as continuity, differentiability, concavity, and homogeneity.
4. The student should be able to do elementary matrix operations such as matrix addition, subtraction, and multiplication.
5. The student should be able to solve systems of linear equations using the substitution method, the elimination by addition method, Gauss-Jordan elimination, the matrix inverse method and Cramer's rule.
6. The student should be able to differentiate functions using various differentiation rules (sum, difference, quotient, and chain rule).
7. The student should be able to do partial derivatives and do implicit differentiation.
8. The student should be able to integrate functions and evaluate definite integrals.
9. The student should be able to calculate interest and solve present value problems.
10. The student should be able to identify and characterize extreme values of one-variable and multi-variable functions.
11. The student should be able to solve both unconstrained and constrained optimization problems.

Grading Policy:

See the table for details on how grades will be determined.

Component of Grade	Weight	Date
Exam I	10%	Thursday Sep. 14
Exam II	10%	Tuesday Oct. 10
Exam III	10%	Tuesday Nov. 7
Exam IV	10%	Tuesday Dec. 5
Class Assignments	30%	Every session
Homework Assignments	30%	Every session
Total	100%	

Overall course grades are rounded to the nearest hundredth of a percent (one decimal point). End-of-semester letter grades will be assigned based on the overall course percentage grade according to the following:

- 98.0% and higher: A+
- 93.0% – 97.9%: A
- 90.0% – 92.9%: A–
- 87.0% – 89.9%: B+
- 83.0% – 86.9%: B
- 80.0% – 83.9%: B–
- 77.0% – 79.9%: C+
- 73.0% – 76.9%: C
- 70.0% – 73.9%: C–
- 60.0% – 69.9%: D
- 59.9% and lower: F

No curve will be imposed under any circumstances.

Class assignments:

Every day, we are going to have in-class activity. One question will be given to you. Using your book and notes, you have to answer it individually (you may form a group and discuss the question, but you need to turn in your own answer).

Homework assignments:

Every day, at the end of the session, I am going to give you a single question. Using all the material you have (including possible online solution), you have to answer it individually, and bring it to the class the following session.

Exams (Four Take-Home Assignments):

You will be provided with four questions on the course selected topics, which you have to answer based on the material you will learn in this class, and possible online solutions.

NO MAKE-UP EXAMS will be offered/given under any circumstances.

Classroom policy:

Please, do not eat during the class; although drinking is totally fine. Do not use your laptop or cell phone during the lectures.

Course Notes:

Classes will be informal lectures, and most of the theory will be explained using proofs and solving a relative question.

NO MAKE-UP Class Assignment or Homework will be given in this course. All assignments will be given randomly during the sessions. Your missed assignment will still count towards your overall grade.

Attendance

Attending class is important, and experience indicates that students who attend the lectures regularly do significantly better than students who miss lectures. If students miss a class, they are responsible for catching up and any missing materials. The university requires students' attendance date for financial aid roll verification and grade F.

The University's attendance policy can be read [here](#).

Important Notes:

1. The course syllabus provides a general plan for the course; deviations may be necessary.
2. All students are responsible for knowing and adhering to [GSU's Policy on Academic Honesty](#) as published in [Student Code of Conduct Handbook](#).
3. Your constructive assessment of this course plays an indispensable role in shaping education at Georgia State. Upon completing the course, please take time to fill out the online course evaluation.
4. Students who wish to request accommodation for a disability may do so by registering with the [Office of Disability Services](#). Students may only be accommodated upon issuance by the Office of Disability Services of a signed Accommodation Plan and are responsible for providing a copy of that plan to instructors of all classes in which accommodations are sought.
5. Students who withdraw after the midpoint of each term will not be eligible for a "W" except in cases of [Emergency Withdrawal](#).
 - a. [Withdrawal Policy](#)
 - b. [Repeat to Replace Policy](#)
 - c. [Grade Appeal and Change \(including Incomplete Grades\) Policy](#)
6. Important University dates can be found at <http://registrar.gsu.edu/registration/semester-calendars-exam-schedules/>
7. Georgia State University values diversity and is committed to fostering and maintaining an educational environment which appreciates individual differences in all areas of operation including classroom instruction, texts, and materials. To this end, any actions, practices, or processes by any faculty, staff person, or student that discriminates against or is prejudicial toward any person or group based on race, gender, age, religion, ethnicity, nationality, disability, sexual orientation, or socioeconomic status will not be tolerated.

Week	#	Day	Date	Topics
1	1	T	22-Aug	Intro and syllabus
	2	R	24-Aug	Chapter 1: Introductory Topics I: Algebra
2	3	T	29-Aug	Chapter 2: Introductory Topics II: Equations
	4	R	31-Aug	Chapter 3: Introductory Topics III: Miscellaneous
3	5	T	5-Sep	Chapter 4: Functions of One Variable
	6	R	7-Sep	Chapter 5: Properties of Functions
4	7	T	12-Sep	Chapter 6: Differentiation
	8	R	14-Sep	Exam I (covers chapters 1, 2, 3, 4, 5) 10 am - 4:00 pm
5	9	T	19-Sep	Chapter 6: Differentiation; Chapter 7: Derivatives in Use
	10	R	21-Sep	Chapter 7: Derivatives in Use
6	11	T	26-Sep	Chapter 8: Single-Variable Optimization
	12	R	28-Sep	Chapter 8: Single-Variable Optimization; Chapter 9: Integration
7	13	T	3-Oct	Chapter 9: Integration
	14	R	5-Oct	review
8	15	T	10-Oct	Exam II (covers chapters 6, 7, 8, 9) 10 am - 4:00 pm
	16	R	12-Oct	Chapter 15: Matrix and Vector Algebra
9	17	T	17-Oct	Chapter 15: Matrix and Vector Algebra; Chapter 16: Determinants and Inverse Matrices
	18	R	19-Oct	Chapter 16: Determinants and Inverse Matrices
10	19	T	24-Oct	Chapter 17: Linear Programming
	20	R	26-Oct	Chapter 17: Linear Programming; review
11	21	T	31-Oct	Chapter 11: Functions of Many Variables
	22	R	2-Nov	Chapter 11: Functions of Many Variables; Chapter 12: Tools for Comparative Statics
12	23	T	7-Nov	Exam II (covers chapters 11, 15, 16, 17) 10 am - 4:00 pm
	24	R	9-Nov	Chapter 12: Tools for Comparative Statics
13	25	T	14-Nov	Chapter 13: Multivariable Optimization
	26	R	16-Nov	Chapter 13: Multivariable Optimization; Chapter 14: Constrained Optimization
Thanksgiving (No Class)				
14	27	T	28-Nov	Chapter 14: Constrained Optimization
	28	R	30-Nov	Chapter 10: Interest Rates and Present Values
		T	5-Dec	Exam IV (covers chapters 10, 12, 13, 14) 10 am - 4:00 pm