Course Syllabus

Course Information

ECO 4351.001 Mathematical Economics, Fall, 2022
Monday and Wednesday, 5:30-6:45
CB3 1.306

Professor Contact Information

Instructor: Jim Murdoch
Office: GR 3.810
Office Hours: *Monday and Wednesday, 4:00-5:00 PM or by appointment*
Phone: 214-724-4148
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Course Prerequisites

(EPPS 2302 or OPRE 3360 or STAT 1342 or STAT 2332 or
STAT 3341 or STAT 3355 or STAT 3360 or STAT 4351) and (MATH 1326 or MATH 2414 or MATH 2419). Ideally, take intermediate micro and maco first (ECON 3310 and ECON 3311).

Course Description

This course develops the basic mathematical tools required for the advanced study of economics. Its purpose is to introduce and practice the application of mathematical methods and concepts to prepare students for an in-depth study of econometrics, microeconomics and macroeconomics. Students should have a basic understanding of calculus, statistics, mathematical analysis, notation and proofs. Each student is expected to read and study the assigned material, participate in class discussion, and to complete in-class and homework assignments.

Student Learning Objectives/Outcomes

On completing this course, the student will be able to:

- Derive and apply mathematical models of microeconomic theories of the household, the firm and markets
- Derive and apply mathematical models of macroeconomic theories of consumption and investment
- Apply mathematical techniques of optimization and linear algebra

Required Textbooks and Materials

Fundamental Methods of Mathematical Economics, Fourth Edition by Alpha C. Chang and Kevin Wainwright ISBN: 0-07-010910-9

Assignments & Academic Calendar

1/19-1/24	Ch. 1-3	Math and Basic Economics Review
1/26-2/2	Ch. 4-5	Linear algebra
2/7-2/9	Ch. 6	Derivatives, limits, continuity, differentiability
2/14-2/16	Ch. 7-8	Differentiation and comparative statics
2/21	Exam I	Chapters 1-8
2/28-3/2	Ch. 9	Optimization, Taylor and MacLaurin series, optimality tests
3/7	Ch. 10	Exponential and logarithmic functions
3/9-3/23	Ch. 11	Optimization of multivariate functions, quadratic forms
3/28-3/30	Ch. 12	Optimization with constraints
4/4-4/6	Ch. 13	Inequality constraints, NDCQ, Maximum-value functions, envelope theorems
4/11	Exam II	Chapters 9-13
4/13	Ch. 14	Integration
4/18-4/20	Ch. 15	First order differential equations
4/20-4/27	Ch. 16	Higher-order DEs
4/27-5/4	Ch. 17	Discrete Time DEs
5/9**	Exam III	Chapters 14-17

Note: this schedule is subject to change based on progress made in class and on homework assignments.
**Exam III will be during final exam period

Grading Policy

Letter grades will be assigned based on:

97-100% (or more)	=	A+
92-96%	=	A
90-91%	=	A-
88-89%	=	B+
82-87%	=	B
80-81%	=	B-
78-79%	=	C+
72-77%	=	C
70-71%	=	C-
68-69%	=	D+
62-67%	=	D
60-61%	=	D-
less than 60	=	F

Exams and homework will be weighted as follows:

Homework	35%
Examinations	25% for exams I and II, 15% for exam III

Course & Instructor Policies

Although attendance on lecture/discussion days is not required, class attendance is important for at least three reasons. We will have in-class exercises designed to reinforce techniques described in the text and in class. Also, student learning is invariably enhanced by interaction with other students, and by questions asked and discussed by students and the instructor. It is my experience that class attendance and test scores are highly correlated.

Homework problems will be assigned regularly, usually weekly, and will constitute a substantial percentage (35%) of your grade in the course. You are encouraged to form groups to work on the homework. Each homework assignment will have a due date. The maximum grade for any late homework will be 70%. The homework must be in your own handwriting or be your own original computer work.

Please use the following link for additional policies related to this class:

https://go.utdallas.edu/syllabus-policies