

Mathematics for Economics



ECON 3620-001 Fall 2013

Monday/Wednesday 8.05 – 9.25 am BUC 106

Instructor: Up Sira Nukulkit

Office: OSH , Economic Department, Cubicle #6

Office Hours: M/W 10.00-11.00 PM at OSH 378 or by appointment (at my office)

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Overview:

This course will introduce students on how economists use mathematics as a main tool in their analyses in order to understand, and sometimes apply, economic theory. It is intended to cover several important mathematical concepts that will be studied in the context of their applications to economics. Also, it is aimed to develop students' abilities to use mathematical techniques to solve problems in economics. At the end of this semester, students would be expected to understand basic mathematical techniques used in economics such as linear algebra, derivative, differential, optimization with and without constraints, and matrix algebra. However, students should be aware that the real use of mathematics in economics is far more advanced than what they will see in the class; therefore, the course is merely designed to be the first step for those who are interested in mathematical economics.

Credits: 3 semester credit hours

Prerequisites: College Algebra, ECON 2010 and ECON 2020

Required Books: *Fundamental Methods of Mathematical Economics*, 4th ed., by Alpha C. Chiang and Kevin Wainwright.

Course Requirements:

Three Homework Assignments	$3 \times 14\% = 42\%$ (2 extra)
Three Exams	$3 \times 20\% = 60\%$

Policy for Late Assignment

Turing in assignment as hard copy at the beginning of the class is preferable. If you cannot come to the class, you must email me the assignment before the class time. After receiving the assignment, I will email back saying that I already received it. Late

assignment will be accepted within one week after the due date with 20% penalty.
Please note that no work will be accepted after one week from the due date

Schedule

Week	Class	Topic	Note
1	26-Aug	Nature of Mathematical Economics	
	28-Aug	Function	
2	2-Sep	Labor day	
	4-Sep	Constructing a Model; Single Commodity	
3	9-Sep	Constructing a Model; General Market	
	11-Sep	Difference Quotient and Slope	Assignment1
4	16-Sep	Rules of Differentiation	
	18-Sep	Rules of Differentiation	Assignment1 Due
5	23-Sep	Optimization; First Derivative	
	25-Sep	Optimization; Second and Higher Derivative	
6	30-Sep	Review for Exam1	
	2-Oct	Exam1	
7	7-Oct	Partial Differentiation and Multivariable Calculus	
	9-Oct	The Uses of Partial Differentiation	
8	14-Oct	Fall Break	
	16-Oct	Fall Break	
9	21-Oct	Total Derivatives	
	23-Oct	Differentials	
10	28-Oct	Optimization; Second-Order Partial Derivatives	
	30-Oct	Optimization of Multivariable Functions	Assignment2
11	4-Nov	Effects of a Constraint; Lagrange-Multiplier	
	6-Nov	Effects of a Constraint; Lagrange-Multiplier	Assignment2 Due
12	11-Nov	Review for Exam2	
	13-Nov	Exam2	
13	18-Nov	Matrices and Matrix Operations	
	20-Nov	Determinants	
14	25-Nov	Matrix Inversion	Assignment3
	27-Nov	Thanks Giving Break	
15	2-Dec	Solving Linear Equations with Matrix Inversion	Assignment3 Due
	4-Dec	Cramer's Rule	
16	9-Dec	Review for Exam3	
	11-Dec	Exam 3	