

Mathematics for Economics; QI

This class fulfills the university QI

ECON 3620 Summer 2015

Tuesday, Thursday 9.10 am – 12.05 am

Instructor: Up Sira Nukulkit

Office: OSH , Economic Department, Cubicle #8

Office Hours: T/H 12.30 - 1.15 pm

Email: sira.nukulkit@economics.utah.edu

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. Please note that prerequisites are crucial in this class. If you do not have a good math background, this class will be very hard as we will use many advanced math concepts.

Required Text: Weekly Class Notes

Weekly class notes are designed to help student learn about mathematical concepts and steps of each topic. Every assignment and exam will follow the subjects that are in class notes.

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

Course Requirements:

Three Homework Assignments	$3 \times 11\% = 33\%$
Three Exams	$3 \times 20\% = 60\%$
Random in class quizzes	7%



Policy for Late Assignment

Turning 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 a day after the due date with 30% penalty. Please note that no work will be accepted after that.

Schedule

Class	Topic	Note
19-May	Nature of Mathematical Economics	
	Constructing a Model; Single Commodity	
21-May	Constructing a Model; General Market	
	Difference Quotient and Slope	
26-May	Rules of Differentiation	
	Rules of Differentiation	
28-May	Optimization; First Derivative	
	Optimization; Second and Higher Derivative	Assignment1
2-Jun	Review for Exam 1	Assignment1 Due
	Exam1	
4-Jun	Partial Differentiation and Multivariable Calculus	
	The Uses of Partial Differentiation	
9-Jun	Total Derivatives, and Differential	
	Optimization; Second-Order Partial Derivatives	
11-Jun	Optimization of Multivariable Functions	
	Effects of a Constraint; Lagrange-Multiplier	Assignment2
16-Jun	Review for Exam2	Assignment2 Due
	Exam2	
18-Jun	Matrices, Matrix Operations, and Determinants	
	Matrix Inversion	
23-Jun	Solving Linear Equations with Matrix Inversion	
	Cramer's Rule	Assignment3
25-Jun	Review for Exam 3	Assignment3 Due
	Exam 3	

University policies:

- Academic (Dis)Honesty. Academic dishonesty of any kind is a serious offense, which undermines both the reputation and quality of the degrees issued by the University of Utah. Plagiarism of any kind, intentional and/or unintentional, will result in strict sanctions against the student per university policy. Please meet with me immediately if you are unclear as to what constitutes plagiarism.
- The University Code: Section V. A. Students must adhere to generally accepted standards of academic honesty, including but not limited to, refraining from cheating, plagiarizing, research misconduct, misrepresenting one's work, and/or inappropriately collaborating.
- Section V. B. A student who engages in academic misconduct ... may be subject to academic sanctions including but not limited to a grade reduction, failing grade, probation, suspension, or dismissal from the program or the University, or revocation of the student's degree or certificate.

Americans with Disabilities Act (ADA) Statement:

The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, 581-5020 (V/TDD). CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in alternative format with prior notification to the Center for Disability Services.