COURSE SYLLABUS
Spring, 2015

Course: ECMT 660/460-600/500
Mathematical Economics

Instructor: Guoqiang Tian
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Lectures: TR 3:05 –4:20 pm
Bush Academic Building West 1006

Office Hours: TR 2:05-3:05 pm or by appointment
Bush Academic Building West 3090

TA: Xinghua Long
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Office hours: F: 8:00-10:30 am
Bush Academic Building West 3043

Textbook: Chiang, A., Fundamental Methods of Mathematical Economics, third edition,

Grade: You will be evaluated on the basis of a series of homework problems and two exams. Homework will be handed out periodically. Your grade will be calculated using the method list below.

Homework: 22%
Exam 1: 40%
Exam 2: 40%

Course Objectives: The purpose of this course is to introduce some basic mathematical methods (solution techniques) used in the three major types of economic analysis: equilibrium analysis; comparative statics; and optimization problems, which correspond to parts 2-4 in the textbook, respectively. These mathematical topics are subjects in linear algebra (matrix algebra), mathematical analysis, and optimization theory. The mathematical methods covered in this course
are fundamental since they are indispensable for a proper understanding of modern economics and they provide basic mathematical tools needed in many fields related to economics and business sciences.

**ADA Policy Statement:** The Americans with Disabilities Act (ADA) is a federal antidiscrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Office of Support Services for Students with Disabilities in Room 126 of the Student Services Building. The phone number is 845-1637.

**Academic Integrity Statements:** “An Aggie does not lie, cheat, or steal or tolerate those who do.”

**Prerequisites:** MATH 131/141 (or MATH 151/152)

**Class Outline:**

**Part I. Equilibrium Analysis and Linear Algebra**

1. The Nature of Mathematical Economics (Chapter 1, pp. 3-6)  
2. Equilibrium Analysis in Economics (Chapter 3, pp. 35-53)  
3. Linear Models and Matrix Algebra (Chapter 4, pp. 54-87)  
4. Linear Models and Matrix Algebra Continued (Chapter 5, pp. 88-115)

**Part II. Comparative-Static Analysis and Mathematical Analysis**

5. Comparative Statics and the Concept of Derivative (Chapter 6, pp. 127-154)  
6. Rules of Differentiation and Their Use in Comparative Statics (Chapter 7, pp. 155-186)  
7. Comparative-Static Analysis of General Function Models (Chapter 8, pp. 187-220)

**Test 1: Thursday, March 12, 3:05 - 4:20 pm**

**Part III. Optimization Theory**

8. Optimization: One Choice Variable (Chapter 9, pp. 231-267)  
9. Exponential and Logarithmic Functions (Chapter 10, pp. 231-274, 282-297)
11. Optimization with Equality Constraints (Chapter 12, pp. 369-409)

Test 2: Thursday, April 30, 3:05-4:20 pm