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

Instructor: Guoqiang Tian
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Lectures: MW 12:25 -1:40 pm
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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: 20%
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 anti-discrimination 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 Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit [http://disability.tamu.edu](http://disability.tamu.edu).

**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)
2. Equilibrium Analysis in Economics (Chapter 3)
3. Linear Models and Matrix Algebra (Chapter 4)
4. Linear Models and Matrix Algebra Continued (Chapter 5)

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

5. Comparative Statics and the Concept of Derivative (Chapter 6)
6. Rules of Differentiation and Their Use in Comparative Statics (Chapter 7)
7. Comparative-Static Analysis of General Function Models (Chapter 8)

**Test 1: Wednesday, March 9, 12:10 –1:55 pm**

**Part III. Optimization Theory**

8. Optimization: One Choice Variable (Chapter 9)
9. Exponential and Logarithmic Functions (Chapter 10)
10. Optimization: More Than One Choice Variable (Chapter 11)
11. Optimization with Equality Constraints (Chapter 12)

Test 2: Wednesday, April 27, 12:10-1:55 pm