

COURSE SYLLABUS

Fall, 2018

Course: ECMT 660/ECON 460
Mathematical Economics

Instructor: Guoqiang Tian
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Lectures: MW 11:30 am–12:45 pm
Bush Academic Building West 1006

Office Hours: MW 1:00 pm-2:00 pm or by appointment
Bush Academic Building West 3090

Recitation Session: Friday TBA
Bush Academic Building West 1006

TA: Shuo Tian
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Office hours: Wednesday 9:00 am-11:00 am or by appointment
Bush Academic Building West 3005

Textbook: Chiang, A. and Kevin Wainwright, *Fundamental Methods of Mathematical Economics*, fourth edition, New York: McGraw-Hill Book Company, 2004.

Course Feature: This is a stacked course for both graduate and undergraduate students. Students taking ECMT 660 are required to study additional material in each major topic area that is not required for students taking ECON 460. In addition, students taking ECON 460 are not competing against students taking ECMT 660. Grades will be assigned for those taking ECON 460 separately from those taking ECMT 660.

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.

Course Policy: All students are required to come and participate in class, take all exams. Classroom attendance is required. All assignments must be turned in on time. Late work and missed exams will be governed by university rules on university-excused absences (see <http://studentrules.tamu.edu/rule07>).

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%

University Education Goal: Texas A&M University has identified student learning outcomes that describe our institutional commitment to your educational goals. These include the ability to demonstrate critical thinking, effective communication, and social, cultural, and global competence. Please see:
http://provost.tamu.edu/essentials/pdfs/copy_of_UndergraduateLearningOutcomesFinal.pdf.

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 the Disabilities Services, currently located in the Disabilities 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>

Title IX and Statement on Limits to Confidentiality Statement:

Texas A&M University and the College of Liberal Arts are committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws provide guidance for achieving such an environment. Although class materials are generally considered confidential pursuant to student record policies and laws, University employees — including instructors — cannot maintain confidentiality when it conflicts with their responsibility to

report certain issues that jeopardize the health and safety of our community. As the instructor, I must report the following information to other University offices if you share it with me, even if you do not want the disclosed information to be shared:

- Allegations of sexual assault, sexual discrimination, or sexual harassment when they involve TAMU students, faculty, or staff.

These reports may trigger contact from a campus official who will want to talk with you about the incident that you have shared. In many cases, it will be your decision whether or not you wish to speak with that individual. If you would like to talk about these events in a more confidential setting, you are encouraged to make an appointment with the Student Counseling Service (<https://scs.tamu.edu/>). Students and faculty can report concerning, non-emergency behavior at <http://tellsomebody.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: Monday, October 29 11:15 am –1:00 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)
12. Optimization with Inequality Constraints (Chapter 13)

Test 2: Wednesday, November 28, 11:15 am-1:00 pm