COURSE SYLLABUS
Fall, 2019

Course: ECMT 660/ECON 460
           Mathematical Economics

Instructor: Guoqiang Tian
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Lectures: TR 9:55 am–11:10 pm
           ALLN 1006

Office Hours: TR 8:55 am-9:55 am or by appointment
           ALLN 3090

Recitation Session: Friday TBA
           ALLN 1006

TA: Shuo Tian
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           Office hours: Wednesday 9:00 am-11:00 am or by appointment
           ALLN 3005

Textbook: Chiang, A. and Kevin Wainwright, Fundamental Methods of Mathematical Economics, fourth edition, New York: McGraw-Hill Book Company, 2004. I will post my lecture notes and other additional materials on eCampus. The course syllabus and lecture notes can also be downloaded from my homepage at: http://people.tamu.edu/~gtian/teaching_and_class_materials.html

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

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 homework assignments and exams. Classroom attendance is required and will be checked regularly. Student Rule 7 explains attendance policies and excused absences (see student-rules.tamu.edu/rule07). 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%

Make-Up Guidelines: Make-up exams are allowed only for the reasons and following the rules stated in Section 7.1-7.4 of the University Students' Rule. To have my permission to make-up exams, you should especially follow the rules stated in Section 7.3: "Except in the case of the observance of a religious holiday, to be excused **the student must notify his or her instructor in writing (acknowledged e-mail message is acceptable) prior to the date of absence if such notification is feasible. In cases where advance notification is not feasible (e.g. accident, or emergency) the student must provide notification by the end of the second working day after the absence**. This notification should include an explanation why notice could not be sent prior to the class. Accommodations sought for absences due to the observance of a religious holiday can be sought either prior or after the absence, but not later than two working days after the absence."

Agreement in Writing: All agreements should be in writing. If you inquire for the possibility to obtain an excuse, or any other circumstance that requires any special accommodation in class, we need to communicate in writing the scope of any arrangement. If a conversation with me makes you think that you are entitled to any special accommodation, you need to send me an email and inquire for a confirmation of this. Unless there is a written

communication from me, you are not entitled to any special accommodation.

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."

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System. For additional information please visit: www.tamu.edu/aggiehonor/

Academic dishonesty will not be tolerated. Representing someone else's work as their own or **cheating in any other manner** will be pursued with disciplinary action and will result in an "F*" grade for the class (F* means that a student gets an F in the course and has to go through a remediation course about the ethics relating to breaking the Aggie code of Honor).

It is prohibited to use a smartphone, cellphone, or other electronic communication device during an exam. If a student is found using such a device during an exam, texting, chatting, messaging, calling, reading a message from its screen, etc., the student will be reported to the honor system and will result in an "F*" grade for the class.

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)

Tentative Date of Exam 1: Tuesday, October 29 9:40 am –11:25 am

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)

Tentative Date of Exam 2: Tuesday, November 26, 9:40 am-11:25 am