Econ 2301
Mathematical Economics
Spring 2018

Instructor: Xin Liang
Lectures: Tuesday and Thursday 14:00pm - 15:15pm, OAK111
Office Hours: Thursday 15:30pm - 17:30pm, Oak 307
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TEXTBOOK

Fundamental Methods of Mathematical Economics, 4th edition (2005) by **A. Chiang, and K. Wainwright** (suggested).

PREREQUISITES

Course prerequisites are: Econ 1200, 1201 and 1202; Math 1071Q,1110Q ,1121Q and 1131. For those who have already been familiar with the contents covered in the course, you could benefit from learning the application in economic problems.

COURSE DESCRIPTION

The purpose of this course is to introduce the fundamental mathematical methods used for economic analyses such as matrix algebra, comparative statics, optimization. It also shortens the distance between mathematics in the text book and the real economics research. After completing this course, you are expected to be able to apply the basic math methods in economics and have a better image about mathematics in the economics research.

GRADING

1) 2 Midterm Exams (20% each)
Midterm exams are pre-scheduled to be on **February 15th (week 5) and March 22th (week 11)**

2) Final Exam (30%)
Final exam will be **cumulative**.

3) Group presentation (15% each).
There will be 2 **in class group presentation** pre-scheduled to be on **March 1st and April 5th**. Students are going to look for two economic models that can be solved by matrix method in the middle of the semester and that can be solved by the optimization method in the end of the semester, respectively. You are also going to analyze the results using the comparative static analysis method, present how you solve for them and the economic meanings behind the results in class. (Maximum 4 students in one group)

• Practice set will be provided before each exam.
• No make-up midterm exams are allowed unless official documentation from athletic center or hospital can be presented.
• If you have a conflict with your final exam time you must obtain official permission to schedule a make-up exam with the Office of Student Support and Advocacy (OSSA), see http://cetl.uconn.edu/syllabus-design/ for more information.

QUESTIONS AND APPOINTMENTS

If you have any questions, contact me by email or stop by during my office hours. Meeting in person is encouraged but please come with specific questions.

Course Outline

Week 1-Week 5

• Matrix Properties

• Matrix Algebra

• Linear models and application

• Derivative, differentiation and comparative static analysis

Midterm 1 (February 15th)

Week 6- Week 10

• Multivariate calculus

• Comparative static analysis of general function

• Derivative test

• The simultaneous method in comparative statics analysis

Midterm 2 (March 22th)

Week 11- Week 15

• Unconstrained optimization problems with one variable

• Multivariate unconstrained optimization

• Multivariate optimization with constraint

• Further topics in optimization (if time allows)
(Schedule is subject to change according to class progress)