



Quantitative Economics

2017 Autumn Semester

Instructor:

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Course Description: This course is designed to provide first-year students in the Masters in Applied Economics program with mathematical tools that are frequently used in graduate economic courses. The first half of the course focuses on a rigorous introduction to mathematical analysis, and the second half is on optimization problems. The topics covered include an introduction to analysis in metric spaces, differential calculus, comparative statics, convexity, static optimization, and dynamic optimization.

Reference Book: *Mathematical Methods and Models for Economists* by Angel de la Fuente; *Microeconomic Theory* (Mathematical Appendix) by Andreu Mas-Colell, Michael D. Whinston and Jerry R. Green.

Problem Sets and Exams: Problem sets will be assigned roughly every two weeks. The due dates for problem sets will be announced in class. Written solutions should be submitted and will be graded. Students are encouraged to work in groups to solve the problems, but the submitted solutions must be individual work.

The midterm and final exams are closed book, closed notes. No communication devices such as computers and mobile phones are allowed in exams. Zero grade will be recorded for missed or late assignment or exam without school-approved reasons.

Grade Distribution:

4 Problem Sets 20%

Midterm Exam 30%

Final Exam 50%

Policies: All students must follow the University's student code of conduct.

Tentative Course Outline: The first lecture is on September 20th (Week 3). The last lecture is on December 20th (Week 16). There is a review class on December 27th (Week 17). The final exam is in early January. Its exact date will be announced later.

Lecture notes will be posted to my website prior to each class. It should be helpful if you read the notes before the class.

月/日	讲课内容	作业
9/20	<ul style="list-style-type: none"> • Review of Basic Concepts • Fuente, Chapter 1 	
9/27	<ul style="list-style-type: none"> • Metric and Normed Spaces • Fuente, Chapter 2 	PS1
10/4	<ul style="list-style-type: none"> • National day holiday, no class 	
10/11	<ul style="list-style-type: none"> • Metric and Normed Spaces • Fuente, Chapter 2 	
10/18	<ul style="list-style-type: none"> • Differential Calculus • Fuente, Chapter 4 	
10/25	<ul style="list-style-type: none"> • Vector Spaces and Linear Transformations • Fuente, Chapter 3 	PS2
11/1	<ul style="list-style-type: none"> • Comparative Statics, Implicit Function Theorem • Fuente, Chapter 5 	
11/8	<ul style="list-style-type: none"> • Concave and Convex Functions • Fuente, Chapter 6 	
11/15	<ul style="list-style-type: none"> • Midterm exam 	PS3
11/22	<ul style="list-style-type: none"> • Static Optimization, Optimization with Equality or Inequality Constraints • Fuente, Chapter 7 	
11/29	<ul style="list-style-type: none"> • Static Optimization, Optimization with Equality or Inequality Constraints • Fuente, Chapter 7 	
12/6	<ul style="list-style-type: none"> • Static Optimization, Optimization with Equality or Inequality Constraints • Fuente, Chapter 7 	PS4
12/13	<ul style="list-style-type: none"> • Dynamic Programming, Optimal Control • Fuente, Chapter 12 	
12/20	<ul style="list-style-type: none"> • Dynamic Programming, Optimal Control • Fuente, Chapter 12 	
12/27	<ul style="list-style-type: none"> • Review 	