Izmir University of Economics
Financial Economics Master Program
Econ 533: Quantitative Methods and Econometrics

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Objectives

- ▶ Give the quantitative skills necessary to understand finance and economics through the master level.
- ▶ Provide solution methods and examples of economic and finance applications.
- ▶ Explain to use mathematical tools efficiently and accurately in the solution of economic and finance problems.
- ▶ Taking up the techniques like regression to make economic forecasts.
- ▶ Discuss several optimization problems encountered in financial and economic models, and explain how to solve such problems using recent advances in methods.

Topics

- One variable Calculus: Application to Economics and Financial Markets
  - Using derivatives to solve min and max problems
  - Using marginal and graphical analysis to understand demand theory, production theory and output decision of the firm
- Economic forecasting and regression analysis
  - Simple and multiple regression
  - Multicollinearity, serial correlation
  - Application: Estimating a demand function
  - Estimating a linear and a nonlinear trend
  - Simple multiequation econometric model: a numeric example

Topics

- ▶ Return, risk, and comovement
  - ▶ Return on investment
  - ▶ Risk and probability
  - ▶ Probability distributions and expected value
  - ▶ Measures of risk
  - ▶ Return on investment
  - ▶ Application: Fund performance
- ▶ Linear programming
  - ▶ Asset liability cash flow matching
  - ▶ Application: constructing a dedicated portfolio

Topics

- Optimization
  - Constrained Optimization
  - Unconstrained Optimization
  - Lagrange Multipliers
  - Kuhn-Tucker Conditions

Preliminaries

- Slides of presentation available on my website:
  http://gulertanozguzer.blogspot.com.tr/
- Check the following website for the course syllabus
  http://ects.ieu.edu.tr/new/syllabus.php?section=fe.ss.ieu.edu.tr&
  course_code=ECON%20533&cer=&lang=en

Textbooks

- MANAGERIAL ECONOMICS: THEORY, APPLICATIONS, AND CASES W. Bruce Allen - Keith Weigelt - Neil Doherty - Edwin Mansfield
  W.W Norton & Comp
- MATHEMATICS FOR ECONOMISTS Carl P. Simon-lawrence Blume
  W.W Norton & Comp

Grading

- 2 midterms 25% each
- 2 homework assignments 10% each
- 1 project 20%
- attendance 10%