

Northeastern University

Department of Economics

Syllabus

Mathematics and Statistics for Economists
ECNG105

Dadkhah
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How to contact me

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Objectives of the course

Mathematics and statistics are indispensable tools for economists. Without a thorough knowledge of mathematics and statistics it would be impossible to understand economics, econometrics, and finance. Economists use mathematics in their work as much if not more than physicists and other scientists. Without statistics, economics reduces to a bunch of stories that are not even amusing. The main objective of this course is to acquaint you with basic methods of mathematics and statistics and their use in economics and econometrics. In addition, knowledge of computational and statistical software is a must for economists. Many class assignments will involve using computational packages such as Matlab and SPSS.

Texts: *Foundations of Mathematical and Computational Economics* Lecture Notes available from Gnomon Copy.

Mathematics, economics, and computation
(chapter 1)
Basic mathematical concepts
(chapter 2)
Introduction to probability theory
(chapter 3)

Static optimization
(chapter 9)
Constrained Optimization
(chapter 10)
Probability distributions
(notes in class)

Vectors and matrices
(chapter 4)
Advanced topics in matrix theory
(chapter 5)
Differentiation
(chapters 6 & 7)
Taylor series and its applications
(chapter 8)

Sampling distributions
(notes in class)
Estimation
(notes in class)
Hypothesis Testing
(notes in class)
Regression
(notes in class and the website)

Grades

Grades are determined on the following basis:

Homework	25%
Mid-Term	35%
Final	40%
Total	100%

