

Northeastern University
Department of Economics

Syllabus

Mathematics and Statistics for Economists
CECNG105 (1st half intensive)

Dadkhah
Fall 2003

How to contact me

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Objectives of the course

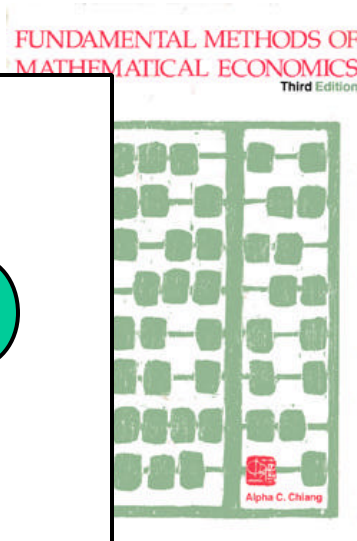
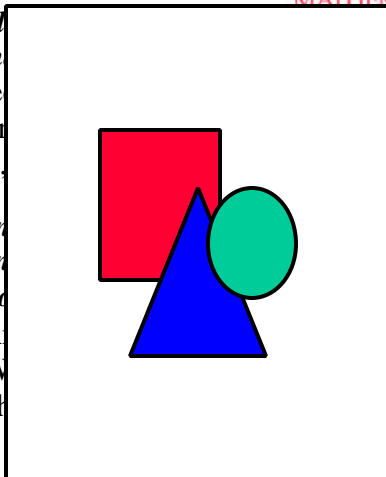
Mathematics and statistics are indispensable tools for economists. Without a thorough knowledge of mathematics and statistics it would be impossible to understand economics, econometrics, and finance. Economists use mathematics in their work as much if not more than physicists and other scientists. Without 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

Our texts are

*Fund
Math*
3rd e
Chian
1984.

*Essen
Busin
Micro*
by A
and V
South



Topics in Mathematics and relevant chapters of Chiang

The nature of mathematical economics

(chapter 1)

Economic models

(chapter 2)

Static analysis

(chapter 3)

Linear models and matrix algebra

(chapters 4 & 5)

Derivative and comparative-static

(chapter 6)

Rules of differentiation

(chapter 7)

Comparative static analysis and
general-function models

(chapter 8)

Optimization and Taylor expansion

(chapter 9)

Exponential and logarithmic
functions

(chapter 10)

Optimization with more than one
choice variable

(chapter 11)

Constrained optimization

(chapter 12)

Integration and economic dynamics

(chapter 13)

First order differential equations

(chapter 14)

Polar coordinates, complex variables
and second order diff. equations

(chapter 15)

Topics in Statistics and relevant chapters of Anderson, Sweeney, and Williams

Data and statistics

(chapter 1)

Estimation

(chapter 8)

Graphical presentation of data
(chapter 2)
Descriptive statistics
(chapter 3)
Introduction to probability theory
(chapter 4)
Continuous probability distributions
(chapter 6)
Sampling and sampling distributions
(chapter 7)

Hypothesis testing
(chapter 9)
Comparison of means
(chapter 10)
Regression analysis
(chapters 12 & 13)
Statistical decision theory
(Lecture notes)

Grades

Grades are determined on the following basis:

Homework
25%

Mid-Term
35%

Final
40%

Total
100%

