



INSTITUTE
OF ECONOMIC STUDIES
Faculty of Social Sciences
Charles University

Mathematics for Economists

Spring Term

Professor: Mgr. Lei Ba

Office hours: by personal arrangement

Contact: lba@cerge-ei.cz

Course Code: JEB117

Course Description:

The course aims to familiarize students with the mathematical methods needed to study modern economics. Students will refresh and expand their math knowledge obtained in prior studies and develop the skills necessary to apply this knowledge to the economic models that they will start to build and explore..

Structure:

The structure of this course will be divided between lectures and seminars. Lectures as well as seminars will meet once per week for 1.5 hours.

Instructions:

Please contact the IEF staff to learn more about the instructions for this course, including meeting times and how to register.

Academic Honesty:

Although the students are encouraged to exchange ideas in and outside class, everybody is required to submit their own work. That means that copying the work of other students or published materials is strictly prohibited.

Grading System:

Final exam	50 %
Midterm exam	50 %

Grades:

90-100 %	A
75-89 %	B
60-74 %	C
<60 %	Failing grade

Course Content:

The lecture topics cover the following:

Mathematics, Computation, and Economics

Basic Mathematical Concepts and Methods

Basic Concepts and Methods of Probability Theory and Computation

Vectors and Matrices, Advanced Topics in Matrix Algebra

Differentiations: Functions of One Variable

Differentiations: Functions of Several Variables

The Taylor Series and Its Applications

Static Optimization, Constrained Optimization

Integration

Dynamic Optimization

Differential Equations, Difference Equations

Reading Materials:

Dadkhan, K. (2007) Foundations of Mathematical & Computational Economics

Sydsæter K. and Hammond P. (2006) Essential Mathematics for Economic Analysis, 2nd edition

Wisniewski, M. (1991) Introductory Mathematical Methods in Economics

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

Vinogradov, V. (2010) Mathematics for Economists Made Simple, Karolinum Press

Sydsæter, K., Hammond, P., Seierstad A. and Strom A. (2008) Further Mathematics for Economic Analysis, 2nd edition

Simon C.P. and Blume L. (1994) Mathematics for Economists

And:

[KhanAcademy.org](https://www.khanacademy.org)

[AcademicEarth.org](https://www.academicearth.org)