

Mathematics for Economists (MSc)

Ludwig-Maximilians-Universität München - Department of Economics

Winter Term 2015/2016

Instructors

Lecture:

Matthias Fahn (matthias.fahn@econ.lmu.de)

Office hours: t.b.d.; a good chance to talk is before/after classes and by appointment.

Class

Nadzeya Laurentsyeva (Nadzeya.Laurentsyeva@econ.lmu.de)

Maria Sablina (maria.sablina@econ.lmu.de)

Course Overview

The course is one of the compulsory modules in the M.Sc. Programme in Economics. The module presents the mathematical methods underlying economic theories and applications. The aim is to provide students with the mathematical background for their subsequent study of economics. The course will be taught in English.

It comprises of a lecture and an accompanying problem solving class.

- Lecture: concepts and underlying theory; proofs are good practice
- Problem Solving Classes: practice, practice, practice

Meeting times and locations

Lecture

- October 02, 9:00 – 12:30 - Geschw.-Scholl-Pl. 1 - M 010
- October 02, 14:30 – 18:00 - Geschw.-Scholl-Pl. 1 - M 010
- October 05, 9:00 – 12:30 - Geschw.-Scholl-Pl. 1 - M 010
- October 06, 9:00 – 12:30 - Geschw.-Scholl-Pl. 1 - M 010
- October 07, 9:00 – 12:30 - Geschw.-Scholl-Pl. 1 - M 010
- October 08, 9:00 – 12:30 - Geschw.-Scholl-Pl. 1 - M 010
- October 09, 9:00 – 12:30 - Geschw.-Scholl-Pl. 1 - M 010

Class

- October 05, 14:00 – 17:00
Geschw.-Scholl-Pl. 1 - A 015: Nadzeya Laurentsyeva
Geschw.-Scholl-Pl. 1 - A 016: Maria Sablina
- October 06, 14:00 – 17:00
Geschw.-Scholl-Pl. 1 - A 015: Nadzeya Laurentsyeva
Geschw.-Scholl-Pl. 1 - A 016: Maria Sablina
- October 07, 14:00 – 17:00
Geschw.-Scholl-Pl. 1 - A 015: Nadzeya Laurentsyeva
Geschw.-Scholl-Pl. 1 - A 016: Maria Sablina
- October 09, 14:00 – 17:00
Geschw.-Scholl-Pl. 1 - A 015: Nadzeya Laurentsyeva
Geschw.-Scholl-Pl. 1 - A 017: Maria Sablina

Weekly class, from the start of the semester until the final exam, probably on November 25

- Tuesday, 12:00 – 14:00 - Geschw.-Scholl-Pl. 1 - A 120: Nadzeya Laurentsyeva
- Wednesday, 12:00 – 14:00 - Geschw.-Scholl-Pl. 1 - M 010: Maria Sablina

Goals of the Course

- Reduce heterogeneity of math backgrounds
- Challenge everyone - so not everyone will understand everything
- Develop basic math skills and knowledge needed to work as a professional economist and read academic economics
- Develop ability to read and evaluate proofs - essential for reading and working in all branches of economics - theoretical, empirical, experimental
- Develop ability to compose simple proofs - essential to working in all branches of economics - theoretical, empirical, experimental

Syllabus

1. Introduction
2. Methods of Proof
3. Matrix Algebra
4. Sets and Mappings
5. Functions
6. Optimization
7. Integration
8. Basics in Probability Theory

Prerequisites

We will be building on high school knowledge in Mathematics. You should have a basic knowledge of linear algebra and multivariable calculus and you should be open for a rigorous approach; all theorems are stated carefully and some proofs are given.

Reading

Most of the core material is covered in the math appendix of the excellent Jehle/Reny book, but any good math for econ book does the job.

- M. Hoy, J. Livernois, C.J. McKenna, R. Rees, and T. Stengos. Mathematics for Economics. MIT Press. 2nd edition (2001)
- G. Jehle and P.J. Reny. Advanced Microeconomic Theory. Prentice Hall. 3rd edition (2011)
- C.P. Simon and L.E. Blume. Mathematics for Economists. W. W. Norton & Company (1994)
- K. Wainwright and A. Chiang. Fundamental Methods of Mathematical Economics. McGraw-Hill/Irwin. 4th edition (2004)

Grading

The final grade will be determined by a 120min exam, probably on November 25.