

MM00: Foundations in Mathematics and Econometrics				Study program:	M
Module type:	ECTS points	Workload:	Semester of study:	Duration of the module	
Compulsory	4	120	1st	One semester	
Courses			Contact hours	Independent study:	Planned group size
<i>Course 1: Foundations in Mathematics</i>			20	40	120
<i>Course 2: Foundations in Econometrics</i>			20	40	120
Learning objectives and competences:					
<p>After completing the module, students are able to</p> <ul style="list-style-type: none"> • apply basic statistical and mathematical concepts in economic applications • work with data and carry out analyses independently • interpret the results of mathematical and statistical methods • explain the concepts learned 					
Key competences:					
<ul style="list-style-type: none"> - <i>Scientific work</i> - <i>Independent learning</i> - <i>Problem solving skills</i> - <i>Critical thinking</i> - <i>Analytical skills</i> - <i>Competence to transfer knowledge</i> - <i>Willingness to learn and perform</i> - <i>Oral and written communication skills</i> 					
Course contents:					

Course 1: Preliminaries, Matrix Algebra, Differentiation, Optimization, Integration.

Course 2: Basics in probability theory (random variables, probability mass/density functions, distributions, expected values, covariances), Basics in statistics and econometrics (samples, point estimators, hypotheses tests, p-values, confidence intervals, asymptotics, regression, instrumental variables)

Language:

The language of the course is English.

Teaching forms:

Lecture, group work, independent study.

Applicability of the module:

M.Sc. VWL, M.Sc. Economics

Requirements for participation:

Admission to the Master's study programmes in VWL or Economics.

Forms of examination:

Other form of examination.

Requirements for the award of ECTS points:

Successful participation in the final module examination.

Frequency:

The courses take place usually every semester as block courses.

Significance of the grade for the final grade:

This module is not graded. For more detailed information on the calculation of the overall grade of your master's degree, please refer to the applicable examination regulations of your respective study program.

Module supervisors and full-time lecturers:

Dr. Tobias Wenzel and Prof. Dr. Jannis Kück

Other information:

Up-to-date information can be found on the website of the DICE.

Stand: 15.08.2023