Syllabus

Course Description

Course Title	Preparatory Course in Mathematics
Course Code	99999
Course Title Additional	
Scientific-Disciplinary Sector	STAT-04/A
Language	English
Degree Course	Bachelor in Economics and Management
Other Degree Courses (Loaned)	Bachelor in Economics, Politics and Ethics
Lecturers	dr. Luciano Marzufero, Luciano.Marzufero@unibz.it https://www.unibz.it/en/faculties/economics-management/academic-staff/person/49853
Teaching Assistant	
Semester	Not defined
Course Year/s	1
CP	0
Teaching Hours	20
Lab Hours	-
Individual Study Hours	-
Planned Office Hours	
Contents Summary	The course refers to the educational activities chosen by the student and belongs to the scientific area of Statistics-Mathematics. The course gives a general overview of scientific contents. Precalculus Mathematics is reviewed which prepares for the Mathematics for Economists course.
Course Topics	• Sets: explanation, representation/notation, elements/subsets, unions, intersections, a few rules, Cartesian product. • Functions: general definitions, examples, real functions as

	important special case. • Very brief re-introduction of natural numbers, integers, rational and real numbers with basic arithmetic rules, percentages. Manipulating algebraic expressions, factoring out and expanding, manipulating fractions, polynomials. • Absolute values, powers and roots, exponentials, logarithms: definition, computation, rules. • Real functions: tables of values and graphical representation, absolute value function, polynomial (linear, higher degrees) and power functions, exponential and logarithmic functions. • Solving linear equations with one variable, a complete case study of quadratic equations including graphs, equations which can be solved via taking logarithms. • Solving two linear equations with two variables simultaneously, cases with none, one and infinitely many solutions, graphical interpretation as intersection of lines. • Solving inequalities (optional): linear inequalities in one and two variables, inequalities involving absolute values in one variable. • Definition of factorials and permutations, binomial coefficients, Pascal's triangle and combinations.
Keywords	Precourse; mathematics
Recommended Prerequisites	none
Propaedeutic Courses	none
Teaching Format	lectures
Mandatory Attendance	not mandatory, but suggested
Specific Educational Objectives and Learning Outcomes	Educational objectives: (1) Refresh mathematical knowledge taught in high school, fill gaps and add a few new insights. (2) Motivate to experience and communicate (about) Mathematics. (3) Introduce mathematical vocabulary in English which is the language of the Mathematics for Economists course.
Specific Educational Objectives and Learning Outcomes (additional info.)	Knowledge and understanding Basic mathematical knowledge will be revised and consolidated, familiarity with elementary solution procedures (e.g. for quadratic equations) will be generated. Applying knowledge and understanding

	By elementary examples from economic theory, a basic understanding for the necessity of mathematical modeling in economics is aimed for. Making judgments The ability to make fundamental distinctions in Mathematics (linear vs. nonlinear, first order vs. higher order etc.) is aimed for. Communication skills Basic abilities to apply a mathematical language in an economical framework will be aimed for. The students will be challenged to talk to the professor and to each other about mathematical constructions. Mathematical vocabulary in English is introduced and/or reviewed. Learning skills Prepares for the Mathematics for Economists and Mathematics for EPE courses which require a solid understanding of mathematical concepts
Assessment	Written final test on Friday 26.09.2025 – evaluation to be announced by the professor
Evaluation Criteria	
Required Readings	
Supplementary Readings	
Further Information	
Sustainable Development Goals (SDGs)	Quality education, Reduced inequalities, Decent work and economic growth, Gender equality