Freie Universität Bozen
Libera Università di Bolzano
Università Liedia de Bulsan

Syllabus
Course description

Course title	Preparatory course in Mathematics – Mathematics for Economists TSE
Course code	30152
Scientific sector	SECS-S/06
Degree	Tourism, Sport and Event Management
Semester and academic year	26.08.2019 – 07.09.2019
Year	1st year
Credits	-
Modular	No

Total lecturing hours	30
Total lab hours	-
Total exercise hours	-
Attendance	recommended, but not required
Prerequisites	not required
Course page	https://www.unibz.it/it/faculties/economics-management/bachelor-tourism-sport-event-management/course-offering/?academicYear=2019

Specific educational objectives	The course refers to the educational activities chosen by the student, belongs to the scientific area of Statistics - Mathematics and is directed to 1st year students who are going to attend the Mathematics for Economists course. The course has two parts. In the first part, pre-calculus mathematics is revised with a focus on elementary calculative skills. In the second part, basic mathematical language for the Mathematics for Economists course is prepared including a discussion of sets, abstract functions, elementary combinatorial concepts and geometry in the plane. 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.

Lecturer	Prof. Dr. rer. nat. habil. Andreas Hamel Email: Andreas.Hamel@unibz.it Bruneck- Brunico Campus. 1st Floor, Professors Room 1.11 https://www.unibz.it/en/faculties/economics-management/academic-staff/person/33708-andreas-

	heinrich-hamel
Scientific sector of the lecturer	SECS-S/06
Teaching language	English
Office hours	https://www.unibz.it/en/timetable/
Lecturing assistant	-
Teaching assistant	-
Office hours	-
List of topics covered	First part: - manipulating algebraic expressions including arithmetic rules for fractions, polynomials, powers, logarithms; - solving linear and quadratic equations as well as inequalities for one and two variables; - investigating and graphing elementary real functions including quadratic, exponential and absolute value functions. - elementary algebraic rules: commutativity, associativity, neutral element, inverse element and distributivity, the real number system. - expanding and factorizing algebraic expression. Second part: - sets and logical expressions. - abstract functions: definition, examples, real functions and their graphs as special cases. - basic combinatorics (permutations, combinations, Pascal triangle). - basic geometry: Cartesian frame of reference, coordinates and points in the plane. - straight line, parabolas, hyperbolas and circles as examples for geometric shapes. - distance between points. - solving systems of linear inequalities in two variables analytically and graphically.
Teaching format	Lectures and moderated dsicussions.

Learning outcomes	**Knowledge and understanding**: Basic mathematical knowledge will be revised and consolidated, familiarity with elementary solution procedures (e.g. for quadratic equations or finding the equation of a straight line) 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. Moreover, a first intuition for quantitative vs. qualitative models should be provided. **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. **Learning skills**: Prepares for the Mathematics for Economists course which requires a solid understanding of mathematical concepts.

Assessment	Informal assessment.
Assessment language	English
Evaluation criteria and criteria for awarding marks	No marks/grades.

Required readings	Manual of Precalculus Mathematics, J.G. Brida. ISBN 978-88-6046-027-1. Bozen-Bolzano University Press, 2009.
Supplementary readings	Will be announced at the beginning of the course.