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
26.09.2022 – 10.10.2022

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

Specific educational objectives
The course refers to the educational activities chosen by the student and belongs to the scientific area of Statistic - Mathematic and is directed to 1st year students preparing for the Mathematics for Economists course.

The course has two parts.

In the first part of 20 hours, pre-calculus mathematics is revised with a focus on elementary calculative skills and 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.

The second part of 10 hours is devoted to special tutoring of students who have deficits in Mathematics and therefore difficulties to follow the lecture Mathematics in Economics. They will be identified using (self)tests.

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
Scientific sector of the lecturer
SECS-S/06

Teaching language
English

Office hours
https://www.unibz.it/en/timetable/?department=26&degree=13009%2C13134

Lecturing assistant
- 

Teaching assistant
- 

Office hours
- 

List of topics covered
First part:
- sets and set calculus, number systems, arithmetic rules for fractions, polynomials, powers, logarithms;
- introduction of sum and product signs as well as factorials,
- basic combinatorics (permutations, combinations, Pascal triangle).
- 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.
- expanding and factorizing algebraic expressions.
- solving systems of linear inequalities in two variables analytically and graphically.

Second part: topics depend on the need of the students identified via (self) tests.

Teaching format
Lectures and moderated discussions.

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.

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Informal assessment: tests at the beginning and at the end.</th>
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</thead>
<tbody>
<tr>
<td>Assessment language</td>
<td>English</td>
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<tr>
<td>Evaluation criteria and</td>
<td>No marks/grades.</td>
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<tr>
<td>criteria for awarding marks</td>
<td></td>
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<tr>
<td>Required readings</td>
<td>No required reading.</td>
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<tr>
<td>Supplementary readings</td>
<td>Will be announced at the beginning of the course.</td>
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