COURSE SYLLABUS

Mathematics

2425-2-E4001N078

Aims

Provide the student with the basic principles of mathematical calculus and discrete probability, so that the quantitative behaviour of social and economic phenomena can be studied and interpreted. Develop logical and analytical skills to solve problems.

Contents

Combinatorics. Discrete probability. Matrices. Introduction to graph theory.

Detailed program

Sets: subsets, operations and relations between sets.
Combinatorics: sequences with and without repetitions. Permutations. Combinations. Finite probability space. Repeated and independent tests. Dependent and independent events. Conditional probability. Conditional probability and partitions. Bayes theorem.

Elementary functions: polynomials, exponentials, logarithms, their properites and graphs.

Operations with matrices.
Introduction to graph theory: definitions, properties and applications. Simple, complete, bipartite graphs. Path. Map coloring. Eulerian graphs. Hanshaking Lemma.

Prerequisites

Elementary algebra. Exponential functions and logarithms. Inequalities.

Teaching form

42 hours of in-person lessons at the blackboard.
50% of the lessons are conducted in an expository mode in person (presentation of definitions, statements, examples) and 50% of the lessons are conducted in an interactive mode in person (exercises).

Textbook and teaching resource

information available on the e-learning platform

Semester

First semester

Assessment method

Written exam with the possibility of an oral integration.
The oral exam can be requested by either the teacher or the student.

The written exam consists of closed and/or open-ended questions that cover all the topics discussed in class.

Two partial exams are scheduled during the course.

The exam is considered passed with the partial exams if the average score is equal to or greater than 18, and the score in each exam is equal to or greater than 16. If a score of 16 or higher is achieved in the first partial exam and the average score in the second exam is below 18, the result of the first partial exam will no longer be considered valid.

Office hours

By appointment

Sustainable Development Goals