UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Linear Algebra

2526-1-E3004Q002

Aims

This course will give the students the basic knowledge in linear algebra.

Contents

- Vector spaces.
- Linear maps.
- Matrices.
- Linear systems.
- Diagonalization theory.
- Unitary spaces.

Detailed program

Vector spaces: linear independence, generators, basis, subspaces.
Linear maps: kernel, image and the dimension formula.
Matrices: rank, determinant.
Linear systems: Gauss elimination, Rouche'-Capelli theorem, affine subspaces.
Diagonalization theory: similarity of matrices, eigenvectors, eivenvalues.
Unitary spaces: Hermitian products, selfadjoint operators, spectral theorem.

Prerequisites

Students should have the basic notions of mathematics from high school: sets, functions, quantifiers.

Teaching form

The instructor explains the new concepts and the theorems and gives examples and exercises on them.

Textbook and teaching resource

Some textbooks will be indicated later.

Semester

First semestre

Assessment method

The assessment relies on two written parts, one formed by questions and one by exercises. There will be no intermediate tests.The written test will consist of theoretical questions and problems. The latter can be both theoretical (e.g. similar to proving a small theorem), both computational, that is based ot explicit matrices, vector spaces and linear maps. The oral test will be mostly theoretical. The student should have a sound knowledge of the theorems and should know how to apply them to solve the exercises.

Office hours

By appointment.

Sustainable Development Goals

NO POVERTY | ZERO HUNGER | GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION | DECENT WORK AND ECONOMIC GROWTH | REDUCED INEQUALITIES