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# Geometria A

## Finalità

This course is aimed at providing students with the basic concepts of linear algebra. On completion of this module, students should be able to

- a) tackle and solve elementary problems of linear analytic geometry,
- b) operate with matrices and solve systems of linear equations,
- c) solve simple eigenvalue problems..

## Programma

1. Linear analytic geometry in Euclidean space: space vectors, scalar product, vector cross product, lines, planes, and their reciprocal position.
2. Vectors, matrices, linear systems:  $\mathbb{R}^n$  as a vector space, operations on matrices, determinants, rank, linear systems, linear dependence and independence, bases, dimension.
3. Linear transformations and diagonalization: matrices and linear transformations, eigenvalues, eigenvectors, diagonalization.

## Attività d'esercitazione

Discussion and solution of exercises and assignments

## Modalità d'esame

Written and oral exam

## Propedeuticità

secondary school mathematics

## Testi consigliati

L. Alessandrini, L. Nicolodi, Geometria A, UNI.NOVA, Parma, 2002.