



Linear Algebra and Geometry

Syllabus

Course code:	6071
Number of ECTS credits:	12
Semester:	full year (September-June)
Prerequisites:	None
Recommended components:	None
Language of instruction:	Spanish (students are allowed to ask questions and write homeworks and exams in English)

Course description

Linear Algebra and linear geometry is a basic pillar of Mathematics. Its concepts and methods, basic or advanced, are required for the development of many branches of Algebra, Mathematical Analysis, Geometry, Statistics or Operational Research, and this justifies its inclusion at the beginning of any Mathematics Degree.

In this course we shall study the basic concepts and tools of Linear Algebra and affine and euclidean geometry.

Learning outcomes and competences

After completion of this course you will:

1. be able to solve standard problems of a first year course on linear algebra and affine and euclidean geometry

Course contents

- I. Vector spaces.
- II. Linear mappings.
- III. Systems of linear equations.
- IV. Determinants and applications
- V. Diagonalization of endomorphisms and matrices. Applications of diagonalization.
- VI. Affine spaces
- VII. Affine maps
- VIII. Euclidean spaces
- IX. Orthogonal transformations
- X. Movements in dimension 3.

References

Main text

1. Notes in the web page of the course. University of Murcia.
2. Castellet, M.; Llerena, I. *Álgebra Lineal y Geometría*. Reverte, 1994.

Supplementary references

1. Anzola, M.; Caruncho, J.R. *Problemas de Álgebra 3: Espacios Vectoriales*. Ed. de los autores, 1981.
2. Anzola, M.; Caruncho, J.R. *Problemas de Álgebra 6: Geometría Afín y Euclídea*. Ed. de los autores, 1981.
3. Hernández, E. *Álgebra y Geometría*. Addison-Wesley, 1998.
4. Merino, L.; Santos, E. *Álgebra Lineal con Metodos Elementales*. Thomson, 2006.
5. Pichaud, J.; Revuz, A. *Geometría*. Continental, 1976.
6. López Pellicer, M. *Álgebra Lineal y Geometría. Ejercicios*. Marl., 1991.