

Información del Plan Docente

Academic Year	2017/18
Faculty / School	100 - Facultad de Ciencias
Degree	453 - Degree in Mathematics
ECTS	6.0
Year	4
Semester	First semester
Subject Type	Optional
Module	---

1.General information**1.1.Introduction****1.2.Recommendations to take this course****1.3.Context and importance of this course in the degree****1.4.Activities and key dates****2.Learning goals****2.1.Learning goals****2.2.Importance of learning goals****3.Aims of the course and competences****3.1.Aims of the course****3.2.Competences****4.Assessment (1st and 2nd call)****4.1.Assessment tasks (description of tasks, marking system and assessment criteria)****5.Methodology, learning tasks, syllabus and resources****5.1.Methodological overview**

The general teaching methodology designed for this class is based on the following:

- Lectures

- Problem sessions and oral presentations

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- Office hours
- Students' individual work

5.2.Learning tasks

Las actividades de aprendizaje serán fundamentalmente, la asistencia a las clases teóricas, la participación en las presentaciones orales y la asistencia a tutorías y el trabajo personal (estudio y realización de ejercicios).

Learning activities will consist on: lectures, oral presentations, office hours and personal work (including homework assignments).

5.3.Syllabus

1. Algebraic Preliminaires

- Commutative rings and ideals.
- Rings of fractions.
- Polynomial rings. Homogeneous polynomials.
- Noetherian rings. The Hilbert basis theorem

2. Algebraic Varieties

- Affine algebraic sets and ideals of sets of points.
- Hilbert's nullstellensatz.
- Polynomial maps, Zariski's topology, morphisms and rational maps.
- The projective space. Projective algebraic sets.
- Varieties in a multiprojective space.

3. Algebraic Plane Curves}

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- Parametrizable curves.
- Local properties: singularities, tangents and multiplicities.
- Multiplicities local rings.
- Bézout's theorem.

5.4. Course planning and calendar

Timetables, exams schedules and any other important information will be available through the Facultad de Ciencias web page.

5.5. Bibliography and recommended resources

E. BRIESKORN, H. KNÖRRER. Plane Algebraic Curves (English edition). Springer, Basel 1986.

W. FULTON. Algebraic curves: An Introduction to Algebraic Geometry, 3rd Edition. Addison Wesley Publ. Co., Reading MA 2008.

F. KIRWAN. Complex algebraic curves. Cambridge University Press, Cambridge 1992.