

## 27037 - Mathematical Astronomy

### 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

- Lectures in which the theoretical aspects of the subject are presented.
- Solution and oral or written presentation of theoretical and practical issues of the subject.
- Problems proposed for personal work.
- Sessions in which the students solve the proposed exercises and problems and discuss their solution procedure.

#### 5.2.Learning tasks

- Lectures for explanation of theoretical contents.

## 27037 - Mathematical Astronomy

- Practical sessions with oral discussion of proposed problems whose solution the students should previously have handed in.
- Support for learning through documents and links on the page of the subject at ADD, moodle.unizar.es (restricted access, with the PIN and password provided by the University)

### 5.3.Syllabus

- Space and time reference frames. Astronomical coordinate systems.
- Two-body problem. Keplerian motion.
- Artificial satellite orbits.

### 5.4.Course planning and calendar

See the academic calendar of the University of Zaragoza and schedules established by the Faculty of Sciences.

### 5.5.Bibliography and recommended resources

BB	Abad, Alberto J.. Astrodinámica / Editorial Bubok <a href="http://www.bubok.es/libro/detalles/219952/Astrodinamica">/www.bubok.es/libro/detalles/219952/Astrodinamica</a> . 2012
BB	Abad, A., Docobo, J.E., Elipe, A.. Curso de astronomía / Prensas Universitarias de Zaragoza, 2002
BB	Bond, V.R., Allman, M.C.. Modern Astrodynamics (Fundamentals and Perturbation methods). Princeton University Press, 1996
BB	Danby, J. M. A. Fundamentals of celestial mechanics / J. M. A. Danby . - 2nd ed., 3rd printing corr. and enl. Richmond, Virginia : Willmann-Bell, 1992
BC	Battin, Richard H.. An Introduction to the Mathematics and Methods of Astrodynamics. Rev. ed. American Institute of Aeronautics and Astronautics. 1999
BC	Elices, T.. Introducción a la Dinámica Espacial. Instituto Nacional de Técnica Aeroespacial. 1991

## 27037 - Mathematical Astronomy

**BC** Green, Robin M.. Spherical astronomy /  
Robin M. Green . Cambridge [etc.] :  
Cambridge University Press, cop. 198

**BC** Vallado, David A.. Fundamentals of  
Astrodynamics and Applications. 3rd. ed.  
Springer. 2007