SUBJECT TEACHING GUIDE

G50 - Astronomy

Double Degree in Physics and Mathematics
Degree in Physics

Academic year 2025-2026

1. IDENTIFYING DATA					
Degree	Double Degree in Physics and Mathematics Degree in Physics			Type and Year	Compulsory. Year 4 Compulsory. Year 3
Faculty	Faculty of Sciences				
Discipline	Subject Area: Classical Mechanics and Astronomy Central Module				
Course unit title and code	G50 - Astronomy				
Number of ECTS credits allocated	6	Term		Semester based (2)	
Web					
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. FISICA MODERNA
Name of lecturer	MARCOS CRUZ RODRIGUEZ
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Other lecturers	MIGUEL RUIZ GRANDA

3.1 LEARNING OUTCOMES
- To have a global view of the Universe, structure scales, and Earth place in the Universe
- To know the role of acting forces in the Universe and their application scale
- To understand the star life-cicle.
- To understand fenomena such as black holes
- To understand the role of General Relativity to study the Universe
- To know the Big Bang evidences and, in particular, the relevance of the cosmic microwave background
- To know the interplay between different observations made with different instruments at different wavelengths
- To analyze new fenomena based on indirect evidences

4. OBJECTIVES
Application of Physics to an astronomical context
Identification of the most relevant physical processes that occur in different astronomical objects
Application of simple physical approximations to understand astronomical objects
Familiarity with the data acquisition procedure
Analysis of real and simulated astronomical data to obtain physica information
Critically evaluate reliability of calculations based on order of magnitude and physical reasoning
To obtain information about astronomical topics: analyse and summarize that information critically
To present and discuss scientific results in public

6. SUBJECT PROGRAM	
CONTENTS	
1	Introduction
2	Position Astronomy
3	Physical Processes
4	Observables and Instrumentation in Astronomy
5	Solar system
6	Extrasolar planets. Life in the Universe.
7	The Sun
8	Stars and stellar evolution
9	Galaxies. Active galaxies
10	Large scale structure. Cosmology

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Exam	Written exam	Yes	Yes	60,00
Practices	Work	No	Yes	40,00
TOTAL				100,00

Observations

In the preparation of practice reports, plagiarism will be considered to include text directly copied from the internet or other sources without being explicitly cited, or when even though cited, the percentage of copied content exceeds a reasonable limit, with the evaluation regulations being applied in these cases.
Approximately 8 practices will be conducted.

All deliverables during the course will be submitted through Moodle, with no submissions accepted through any other means.

Observations for part-time students

Part-time students must take the same tests as other students. Report submission deadlines will be scheduled as flexibly as possible.

8. BIBLIOGRAPHY AND TEACHING MATERIALS
BASIC
“Astronomy Today” E. Chaisson, S. McMillan, 2015, Pearson (recurso online en BUC)
“Foundations of Astrophysics”, Ryden & Peterson, 2010, Addison-Wesley
“Astronomy” J.D. Fix, 2011, McGraw-Hill