

SUBJECT TEACHING GUIDE

G50 - Astronomy

Double Degree in Physics and Mathematics Degree in Physics

Academic year 2022-2023

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	SILVIA MATEOS IBAÑEZ				
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Other lecturers	JOSE IGNACIO GONZALEZ SERRANO ROSA MARIA DOMINGUEZ QUINTERO LORENZO BARQUIN GONZALEZ				

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-cycle.
- To understand phenomena 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 phenomena 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 physical 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. COURSE ORGANIZATION

CONTENTS

1	Introduction
2	Physical processes in Astronomy
3	Positional Astronomy
4	Observables and instrumentation in Astronomy
5	The Sun and the Solar System
6	Extrasolar planets. Life in the Universe.
7	The Sun
8	Stars and star evolution
9	Galaxies. Active galaxies.
10	Large-scale structure. Cosmology

7. ASSESSMENT METHODS AND CRITERIA				
Description	Type	Final Eval.	Reassessn	%
Written examination consisting on problems	Written exam	Yes	Yes	30,00
Three Lab experiments. Deliverables will be written reports.	Laboratory evaluation	No	Yes	40,00
Short tests. There will be three of such controls after blocks 3, 6, and 9.	Others	No	No	30,00
TOTAL				100,00
Observations				
The insertion of text from internet or any other source without giving the credit to that source, will be considered plagiarism. In such case, the evaluation regulation will be applied. This applies to all written works presented. All deliverables will be sent using Moodle. No other mean will be allowed.				
Observations for part-time students				
Final exam is compulsory.				
Controls are optional. If the student decides not to do them, final exam will count 60% of the total grade.				
Schedules for lab experiments and written examinations will be flexible enough to make easier to follow the course.				

8. BIBLIOGRAPHY AND TEACHING MATERIALS
BASIC
"Astronomy Today" E. Chaisson, S. McMillan, 2002, Prentice Hall (recurso online en BUC)
"Foundations of Astrophysics", Rayden & Peterson, 2009, Pearson
"Fundamental Astronomy" H. Karttunen, P. Kröger, H. Oja, 2007, Springer