SUBJECT TEACHING GUIDE

355 - Data Mining

Master's Degree in Mathematics and Computing

Academic year 2026 - 2027

1. IDENTIFYING DATA					
Degree	Master's Degree in Mathematics and Computing			Type and Year	Optional. Year 1
Faculty	Faculty of Sciences				
Discipline					
Course unit title and code	355 - Data Mining				
Number of ECTS credits allocated	3	Term		Semester based (1)	
Web					
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. MATEMATICAS, ESTADISTICA Y COMPUTACION
Name of lecturer	PABLO GARCIA GOMEZ
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Office	Facultad de Ciencias. Planta: + 0. DESPACHO DE PROFESORES (0058)
Other lecturers	

3.1 LEARNING OUTCOMES
Know, understand and know how to apply advanced data mining techniques.
Know, understand and know how to apply statistical techniques of regression and classification.
Know, understand and know how to apply methods for decision making.

4. OBJECTIVES
Learning the current statistical techniques of automatic modelling and data analysis.
To know the different types of data mining problems like classification, prediction, etc.
Capability to choose and apply appropriated techniques to solve specific problems of data mining.
Capability to use data modelling tools (software and packages).

6. COURSE ORGANIZATION	
CONTENTS	
1	Introduction to Data Mining
2	Regression and Classification Models
3	Association rules analysis and clustering.

7. ASSESSMENT METHODS AND CRITERIA				
Description	Type	Final Eval.	Reassessment	%
Final proyect.	Work	Yes	Yes	100,00
TOTAL				100,00

Observations

Optionally, the assignment may be completed in English to develop the student's language skills. The topic and nature of the assignment will be determined based on the student's interests and may be proposed by the student, subject to approval by the instructors.

Assignments will be analyzed using plagiarism and AI-detection tools provided by the University of Cantabria. Students who improperly claim authorship of academic work or use AI for 50% or more of assignments required for assessment will receive a grade of "fail" or "0", depending on whether the grading is alphabetical or numerical. In such cases, instructors may submit a report to the Faculty, which will have a maximum period of two months to decide, after hearing from the student, whether to include this incident in their academic record.

Observations for part-time students

Part-time students will be assessed in the same way as full-time students.

8. BIBLIOGRAPHY AND TEACHING MATERIALS
BASIC
T. Hastie, R. Tibshirani, J. Friedman, The Elements of Statistical Learning: Data Mining, Inference, and Prediction, Springer-Verlag, 2001.
Christopher M. Bishop. Pattern Recognition and Machine Learning, Springer, 2006