

## SUBJECT TEACHING GUIDE

### G1684 - Statistical Inference

#### Double Degree in Physics and Mathematics Degree in Mathematics

Academic year 2023-2024

1. IDENTIFYING DATA					
Degree	Double Degree in Physics and Mathematics Degree in Mathematics			Type and Year	Compulsory. Year 4 Compulsory. Year 3
Faculty	Faculty of Sciences				
Discipline	Subject Area: Probability and Statistics Module: Compulsory Subjects				
Course unit title and code	G1684 - Statistical Inference				
Number of ECTS credits allocated	6	Term	Semester based (2)		
Web					
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. MATEMATICAS, ESTADISTICA Y COMPUTACION				
Name of lecturer	ARACELI TUERO DIAZ				
E-mail	araceli.tuero@unican.es				
Office	Facultad de Ciencias. Planta: + 1. DESPACHO PROFESORES (1052)				
Other lecturers					

3.1 LEARNING OUTCOMES
- Know the basic properties of the estimators and be able to apply the usual methods for their construction (likelihood, Bayes, least squares, ...); including interval estimation.
- - Establish and solve hypothesis tests with one and two populations
- - Build and analyze linear models
- - Use statistical analysis software

#### 4. OBJECTIVES

Specific objectives: Knowledge

- Develop intuition regarding random phenomena and its methodology.
- Comprehend the mathematical statistics concepts.
- Handle and comprehend the different methodologies and views of the statistical inference, appreciating its applicability to real problems.

Specific objectives: Abilities

- Summarize and descriptively analyze datasets.
- Be able to build and use estimators
- Check the veracity of certain hypothesis through the use of hypothesis testing and goodness of fit test

#### 6. COURSE ORGANIZATION

##### CONTENTS

1	1 Simple random sampling. Statistics
2	Punctual estimation theory.
3	Interval estimation.
4	The linear model. Regression
5	5 The linear model. Analysis of Variance
6	Final exam.
7	Tutorial.

#### 7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Midterm exam.	Written exam	No	Yes	50,00
Final exam.	Written exam	Yes	Yes	50,00
TOTAL				100,00
Observations				
Students who have passed the first exam have the opportunity to do a new exam in June to get up note.				
Observations for part-time students				
Part-time students must say if they choose to carry out the continuous assessment or perform only the final exam. In this case, the exam will account for 100% of their rating.				

#### 8. BIBLIOGRAPHY AND TEACHING MATERIALS

##### BASIC

Si bien, hay unos apuntes de la asignatura que contienen un alto porcentaje de los contenidos, dichos apuntes no se seguirán fielmente, proporcionando en clase nuevos materiales.

CUESTA ALBERTOS, J.A. , TUERO A. Inferencia estadística (Apuntes).

LINDGREN, B.W (1993). Statistical Theory. Chapman and Hall: New York.

ROHATGI, V.K. (1976). An Introduction to Probability Theory and Mathematical Statistics. Wiley, Nueva Cork

