IDENTIFYING DATA
Statistics II

Subject	Statistics II
Code	V03G100V01403
Study programme	Grado en Economía

Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Mandatory	2nd	2nd

Teaching language	#EnglishFriendly Galician English
Department	
Coordinator	Bergantiños Cid, Gustavo
Lecturers	Bergantiños Cid, Gustavo Lorenzo Picado, Leticia
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General description	This subject gathers different statistical inference techniques, both parametric and non-parametric and an introduction to linear regression techniques. English Friendly subject: International students may request from the teachers: a) resources and bibliographic references in English, b) tutoring sessions in English, c) exams and assessments in English.

Training and Learning Results

Code	
C8	Ability to look for, identify and interpret relevant sources of economic information and their contents.
C10	Ability to use technical tools to formulate simple models concerning economic variables.
C12	Use empirical techniques to assess the consequences of alternative actions to ultimately choose the best option.
D5	Skills to make coherent and intelligible statements both in oral and written form.
D7	Promote critical and self-critical thinking.

Expected results from this subject

Expected results from this subject	Training and Learning Results	
Know how to interpret and draw conclusions about data	C8 C10 C12	D5 D7
Limit the values of an unknown parameter, controlling the error that we commit	C8 C10 C12	D5 D7
Know under what conditions one can assume that a parameter takes a specific value or range of values	C8 C10 C12	D5 D7
Know when we can make assumptions about the distribution of one or more unknown variables	C8 C10 C12	D5 D7
Know how to find linear relationships between a pair of variables	C8 C10 C12	D5 D7

Contents

Topic	
1. Introduction	1. Objetivs from Statistics II. 2. Sampling distributions.

2. Point estimation	1. Introduction 2. Properties of the estimators 3. Maximum likelihood estimation 4. Moments method.
3. Interval estimation	1. Introduction 2. Confidence intervals for normal distributions 3. Confidence intervals for proportions 4. Confidence interval for the average of a Poisson distribution
4. Parametric hypothesis testing	1. Introduction 2. Tests for normal distributions 3. Tests for proportions 4. Tests for the average of a Poisson distribution
5. Nonparametric hypothesis testing	1. Introduction 2. Test of randomness 3. Tests of goodness of fit 4. Tests of homogeneity for independent samples 5. Tests of homogeneity for paired samples 6. Test of independence
6. Simple linear regression model	1. Introduction 2. Least square estimators 3. Coefficient of determination (square R) 4. Hypothesis testing and confidence intervals for the parameters of the model 5. Prediction

Planning

	Class hours	Hours outside the classroom	Total hours
Problem solving	10	0	10
Seminars	2.5	0	2.5
Laboratory practical	7.5	0	7.5
Autonomous problem solving	0	30	30
Lecturing	26	30	56
Essay questions exam	2	10	12
Essay questions exam	2	10	12
Essay questions exam	2	18	20

*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

Methodologies

	Description
Problem solving	The teacher will solve a series of exercises as an example
Seminars	The students will discuss with the professor the doubts they have about the different lessons
Laboratory practical	Students will use some statistical software in the computer room
Autonomous problem solving	Students must solve autonomously the exercises that will be proposed during the class
Lecturing	The teacher will explain the theoretical concepts that will be used in the course

Personalized assistance

Methodologies	Description
Problem solving	The teacher will solve the doubts students have about the problem sets
Seminars	The teacher will discuss with the students on various aspects of the subject
Laboratory practical	The teacher will solve the doubts the students have about the computer practices at the computer room

Assessment

	Description	Qualification	Training and Learning Results	
Laboratory practical	The students should make statistical analyses using the computer	15	C8 C10 C12	D5 D7
Essay questions examFirst partial. Subjects 1, 2, 3 and 4.		25	C8 C10 C12	D5 D7

Essay questions examSecond partial. Subjects 5 and 6.	25	C8 C10 C12	D5 D7
Essay questions examExamination. All the subject.	35	C8 C10 C12	D5 D7

Other comments on the Evaluation

In the final degree call in October, the exam grade will be 100% of the final score of the subject.

Alternatively to the system of continuous evaluation, the student may opt for a global assessment exam that will mean 100% of the grade. This will apply to both the ordinary and the extraordinary call. The deadline for renouncing to continuous evaluation will be fixed by the Faculty.

The dates of examinations should be consulted on the website of the faculty: http://fccee.uvigo.es

The schedule of tutorships will appear in Moovi. The tutorships can be requested by Email.

Sources of information

Basic Bibliography

F.J. Martín-Pliego López, L. Ruiz-Maya Pérez, **Fundamentos de Inferencia Estadística**, 2005, Thomson, 2005

F.J. Martín-Pliego López, J.M. Montero Lorenzo, L. Ruiz-Maya Pérez, **Problemas de Inferencia Estadística**, 2005, Thomson, 2005

P. Newbold, W.L. Carlson, B.M. Thorne, **Estadística para administración y economía**, 2013, Pearson, 2013

Complementary Bibliography

G.C. Canavos, **Applied probability and statiscal methods**, 1984, Little Brown,

T.H. Woonacott, R.J. Wonnacott, **Introductory Statistics**, 1990, John Wiley,

J.D. Gibbons, S. Chakraborti, **Nonparametric Statistical Inference**, 2011, CRC Press,

V.K. Rohatgi, A.K.E. Saleh, **An Introduction to Probability and Statistics**, 2015, John Wiley,

G. Casella, R.L. Berger, **Statistical Inference**, 2002, Duxbury/Thomson Learning,

J. Baró Llinás, **Inferencia Estadística. Aplicaciones Económico Empresariales**, 1993, Parramón, 1993

G.C. Canavos, **Probabilidad y Estadística: Aplicaciones y métodos**, 1997, McGraw Hill, 1997

J. M. Casas-Sánchez y otros, **Ejercicios de inferencia estadística y muestreo para economía y administración de empresas**, 2006, Pirámide, 2006

C. Cuadras, **Problemas de Probabilidad y Estadística**, 1995, PPU, 1995

L. Martínez, C. Rodríguez, R. Gutiérrez, **Inferencia Estadística, un enfoque clásico**, 1993, Pirámide, 1993

D. Peña, **Fundamentos de Estadística**, 2001, Alianza, 2001

D. Peña, **Regresión y diseño de experimentos**, 2010, Alianza, 2010

F. Tusell, L. Garín, **Problemas de Probabilidad y Inferencia Estadística**, 1991, Tebar Flores, 1991

B. Visauta, **Análisis estadístico con SPSS 14**, 2007, McGraw Hill, 2007

Recommendations

Subjects that continue the syllabus

Econometrics I/V03G100V01501

Econometrics II/V03G100V01601

Subjects that it is recommended to have taken before

Statistics: Statistics 1/V03G100V01205

Mathematics: Mathematics 1/V03G100V01104

Mathematics II/V03G100V01303