



## IDENTIFYING DATA

### Statistics II

Subject	Statistics II			
Code	V03G100V01403			
Study programme	Degree in Economics			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Mandatory	2nd	2nd
Teaching language	Galician English			
Department				
Coordinator	Bergantiños Cid, Gustavo			
Lecturers	Bergantiños Cid, Gustavo Lorenzo Picado, Leticia			
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General description	Statistical inference			

## Competencies

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	Skill to make coherent and intelligible statements both in oral and written form.
D7	Critical and self-critical thinking.

## Learning outcomes

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. Reminder of Statistics I 2. Aims of Statistics II
2. Point estimation	1. Introduction 2. Properties of the estimators 3. Maximum likelihood estimation

3. Interval estimation	<ol style="list-style-type: none"> <li>1. Introduction</li> <li>2. Confidence intervals for normal distributions</li> <li>3. Confidence intervals for proportions</li> <li>4. Confidence interval for the average of a Poisson distribution</li> </ol>
4. Parametric hypothesis testing	<ol style="list-style-type: none"> <li>1. Introduction</li> <li>2. Tests for normal distributions</li> <li>3. Tests for proportions</li> <li>4. Tests for the average of a Poisson distribution</li> </ol>
5. Nonparametric hypothesis testing	<ol style="list-style-type: none"> <li>1. Introduction</li> <li>2. Test of randomness</li> <li>3. Tests of goodness of fit</li> <li>4. Tests of homogeneity for independent samples</li> <li>5. Tests of homogeneity for paired samples</li> <li>6. Test of independence</li> </ol>
6. Simple linear regression model	<ol style="list-style-type: none"> <li>1. Introduction</li> <li>2. Least square estimators</li> <li>3. Coefficient of determination (square R)</li> <li>4. Hypothesis testing and confidence intervals for the parameters of the model</li> <li>5. Prediction</li> </ol>

### Planning

	Class hours	Hours outside the classroom	Total hours
Problem solving	10	0	10
Seminars	2.5	0	2.5
Laboratory practical	6	0	6
Autonomous problem solving	0	30	30
Lecturing	30	30	60
Essay questions exam	2	34	36
Problem and/or exercise solving	1.5	4	5.5

\*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 the IBM SPSS 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 IBM SPSS practices at the computer room

### Assessment

	Description	Qualification	Training and Learning Results	
Essay questions exam	A final exam.	70	C8 C10 C12	D5 D7
Problem and/or exercise solving	Several tests will be conducted throughout the course. The practices at the computer lab will be the 10% of the final grade, the partial proofs will be the 15%, and the active participation in class (resolution of exercises, answering to questions,...) will be the final 5%.	30	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 choose to be evaluated with a final exam that will mean 100% of the grade. This will apply to both the ordinary and the extraordinary call.

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

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## 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 statistical 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

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## Recommendations

### Subjects that continue the syllabus

Econometrics I/V03G100V01501

Econometrics II/V03G100V01601

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### Subjects that it is recommended to have taken before

Statistics: Statistics I/V03G100V01205

Mathematics: Mathematics I/V03G100V01104

Mathematics II/V03G100V01303