UNIVERSIDADE DA CORUÑA

Teaching Guide

Identifying Data				2023/24
Subject (*)	Statistics I		Code	611G01006
Study programme	Grao en Economía			

Descriptors				
Cycle	Period	Year	Type	Credits
Graduate	2nd four-month period	First	Basic training	6
Language	GalicianEnglish			
Teaching method	Face-to-face			
Prerequisites				
Department	Economía			
Coordinador	Martinez Filgueira, Xose Manuel	E-mail	xose.martinez@udc.es	
Lecturers	Garcia-Carro Peña, Beatriz	E-mail	beatriz.garcia-carro@udc.es	
	Iglesias Vazquez, Emma Maria		emma.iglesias@udc.es	
	Martinez Filgueira, Xose Manuel		xose.martinez@udc.es	
Web	www.udc.es/dep/ecoapl2/esteco1/economia/			
General description	Knowing and understanding the essential concepts on Data Analysis, as well as the handling of its basic techniques. Knowing and understanding the essential concepts on Probability Calculus.			

Study programme competences	
Code	Study programme competences
A1	CE1- Contribuír á boa xestión da asignación de recursos tanto no ámbito privado como no público.
A2	CE2-Identificar e anticipar problemas económicos relevantes en relación coa asignación de recursos en xeral, tanto no ámbito privado como no público.
A3	CE3-Aportar racionalidade á análise e á descripción de calquera aspecto da realidade económica.
A4	CE4-Avaliar consecuencias e distintas alternativas de acción e seleccionar as mellores, dados os obxectivos.
A5	CE5-Emitir informes de asesoramento sobre situación concretas da economía (internacional, nacional ou rexional) ou de sectores da mesma.
A6	CE6-Redactar proxectos de xestión económica a nivel internacional, nacional ou rexional. Integrarse na xestión empresarial.
A7	CE7-Identificar as fontes de información económica relevante e o seu contido.
A8	CE8-Entender as institucións económicas como resultado e aplicación de representacións teóricas ou formais acerca de cómo funciona a economía.
A9	CE9-Derivar dos datos información relevante imposible de recoñecer por non profesionais.
A10	CE10-Usar habitualmente a tecnoloxía da información e as comunicación en todo a seu desempeño profesional.
A11	CE11Leer e comunicarse no ámbito profesional en máis dun idioma, en especial en inglés.
A12	CE12-Aplicar á análise dos problemas criterios profesionais baseados no manexo de instrumentos técnicos.
A13	CE13-Comunicarse con fluidez no seu contorno e traballar en equipo.
B1	CB1 - Que os estudantes demostren posuir e comprender coñecementos nun área de estudo que parte da base da educación secundaria xeral, e que soe encontrar nun nivel que, ainda que se apoia en libros de texto avanzados, inclúe tamén algúns aspectos que implican coñecementos procedentes da vangarda do seu campo de estudo.
B2	CB2 - Que os estudantes saiban aplicar os seus coñecementos ó seu traballo ou vocación dun xeito profesional e posúan as competencias que se demostran por medio da elaboración e defensa de argumentos e a resolución de problemas dentro da su entorna de traballo.
B3	CB3 - Que os estudantes teñan a capacidade de reunir e interpretar datos relevantes (normalmente dentro da su área de estudo) para emitir xuizos que inclúan unha reflexión sobre temas relevantes de índole social, científica ou ética
B4	CB4 - Que os estudantes poidan transmitir información, ideas, problemas e solucións a un público tanto especializado como non especializado
B5	CB5 - Que os estudantes desenvolvesen aquelas habilidades de aprendizaxe necesarias para emprender estudos posteriores cun alto grao de autonomía

B6	CG1- Que os estudantes formados se convertan en profesionais capaces de analizar, reflexionar e intervir sobre os diferentes elementos que constitúen un sistema económico
B7	CG2 - Que os estudantes coñezan o funcionamento e as consecuencias dos sistemas económicos, as distintas alternativas de asignación de recursos, acumulación de riqueza e distribución da renda e estean en condicións de contribuír ao seu bo funcionamento e mellora
B8	CG3 -Que os estudantes sexan capaces de identificar e anticipar os problemas económicos relevantes, identificar alternativas de resolución, seleccionar as máis axeitadas e avaliar os resultados aos que conduce.
B9	CG4 -Que os estudantes respecten os dereitos fundamentais e de igualdade de oportunidades, non discriminación e accesibilidade universal das persoas con minusvalidez.
B10	
C1	CT1-Expresarse correctamente, tanto de forma oral coma escrita, nas linguas oficiais da comunidade autónoma.
C2	Dominar a expresión e a comprensión de forma oral e escrita dun idioma estranxeiro.
C3	Utilizar as ferramentas básicas das tecnoloxías da información e as comunicacións (TIC) necesarias para o exercicio da súa profesión e para a aprendizaxe ao longo da súa vida.
C4	CT2-Desenvolverse para o exercicio dunha cidadanía aberta, culta, crítica, comprometida, democrática e solidaria, capaz de analizar a realidade, diagnosticar problemas, formular e implantar solucións baseadas no coñecemento e orientadas ao ben común.
C5	CT3-Entender a importancia da cultura emprendedora e coñecer os medios ao alcance das persoas emprendedoras.
C6	CT4-Valorar criticamente o coñecemento, a tecnoloxía e a información dispoñible para resolver os problemas cos que deben enfrontarse.
C7	CT5-Asumir como profesional e cidadán a importancia da aprendizaxe ao longo da vida.
C8	CT6-Valorar a importancia que ten a investigación, a innovación e o desenvolvemento tecnolóxico no avance socioeconómico e cultural da sociedade.

Learning outcomes			
Learning outcomes	**Study programme competences**		
Knowing and understanding the essential concepts on Data Analysis and Descriptive Statistics.	A1 A2 A3 A4 A5 A6 A7 A8 A9 A11 A13	B1 B2 B3 B4 B5 B6 B7 B8 B9 B10	C1 C2 C3 C4 C5 C6 C7 C8
Knowing and understanding the handling of the basic techniques on Data Analysis and Descriptive Statistics.	A3 A4 A5 A7 A9 A10 A11 A12 A13		C1 C3 C4 C5 C6 C7 C8

Knowing and understanding the essential concepts on Probability Calculus.	A3 A4 A5 A7 A9 A11 A13		C1 C4 C5 C6 C7 C8
Handling the essential concepts on Probability Calculus.	A3 A4 A5 A7 A9 A10 A11 A12 A13		C1 C3 C4 C5 C6 C7 C8

Contents	
Topic	**Sub-topic**
0.- Introduction	0.1 What is Statistics?
1.- Data Descriptive Analysis. Descriptive Statistics.	1.1 One-dimensional analysis
	1.2 Two-dimensional analysis
2.- Probability	2.1 Introduction to Probability Calculus
3.- Random variables	3.1 One-dimensional random variables
	3.2 Two-dimensional random variables
4.- Analysis of the relationship between variables	4.1 Regression and correlation
5.- Random variables distributions	5.1 Main distributions of a random variable
6.- Convergence	6.1 Convergence and Central Limit Theorem
7.- Time series	7.1 Time series
8.- Index numbers	8.1 Index numbers
Transversal lesson: EXCEPT the ENGLISH group Introduction with R programming	1.- What is R? Working with command lines 2.- Simple elements: vectors and data.frames

Planning				
Methodologies / tests	**Competencies**	**Ordinary class hours**	**Student?s personal work hours**	**Total hours**
Guest lecture / keynote speech	A3 C1 C8	17	34	51
Workshop	A9 A12 C6 C7	14	28	42
ICT practicals	A10 C3	5	15	20
Workbook	A7 A11	0	5	5
Mixed objective/subjective test	A4 A5	2	4	6
Collaborative learning	A13 C4 C5	2	2	4
Supervised projects	A3 A4 A5 A7 A9 A10 A12 A13 C1 C3 C6 C7 C8	3	9	12
Seminar	A3 A4 A7 A9 A10 A12 A13 C1 C3 C6	4	0	4

Problem solving	A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 B2 B1 B3 B4 B5 B6 B7 B8 B10 B9 C1 C2 C3 C4 C5 C6 C7 C8	1	4	5
Personalized attention		1	0	1

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

Methodologies	
Methodologies	**Description**
Guest lecture / keynote speech	Lesson given by the teacher that may have different formats (theory, problems and/or general examples, general guidelines of the subject, etc.). The teacher might use audiovisual and computer means. In addition, s/he can introduce some questions posed to the students. The objective is to introduce the student into the concepts of the subject, in order to transmit the knowledge base that the student needs to start his/her work and his/her learning.
Workshop	The main objective in these classes will be the realization of especially practical tasks, with the teacher's support and supervision: proposal and solution of applications from the theory, proposal and supervision of works, problems, exercises, presentations, expositions, debates and comments on works, solving doubts about the theory, etc. It is also possible that the teacher explains some concepts, especially for clarifying their application, or in any case as a mere comment about the keynote speech. Evaluation activities will be carried out during these classes; those activities will be individual or group exercises.
ICT practicals	The main objective in these classes will be the development of especially practical tasks, with the teacher's support and supervision. The computer is employed in these classes, which are reserved for lessons or concepts where the intensity of the calculations needs the computer tool. In addition, the students are introduced into the work with Statistics by using computer means.
Workbook	Reading of tests related to the subject or texts that complement what has been explained in the classroom.
Mixed objective/subjective test	A mixed test will be carried out, which will correspond to the final exam. As this test is considered essential for the evaluation, it is necessary to obtain at least a 40% of the total mark in order to compute (incorporate) the remaining evaluation activities. As an alternative to this mixed test and with the aim of promoting the continued work by the student, the teacher will propose intermediate mixed tests along the teaching period. Passing all these intermediate tests is equivalent to pass the final test.
Collaborative learning	Work in groups of students in order to solve the tasks assigned by the teacher to optimize their own learning and that of the rest of classmates. Before handling the work in groups, several classes will be dedicated to pose the doubts and/or difficulties found when doing the work. In this manner, a debate is created among the students, their classmates and the teacher, who encourages the interrelation in the work and the critical spirit. Students should carry out group works so as to solve different theoretical-practical questions related to different lessons of the syllabus; at the end, the group should present its work, with different possibilities regarding its exposition (oral or written), computer assessment; the election of the method will depend on the evolution of the teaching.
Supervised projects	In combination with collaborative learning and under teacher supervision, the student will carry out works in groups focussed on the learning of "how to do things". It is an option based on the assumption that the students care about their own learning. This teaching method is based on two basic elements: independent learning (students) and monitoring of that learning (teacher-supervisor). The teacher will develop the monitoring of this learning with the aim of assessing the acquisition of the knowledge defined for this category.
Seminar	Each group will be divided into two sub-groups of students (half the students each one). There will be four hours per student dedicated to seminars. These sessions may be used to solve doubts and to discuss about the different parts of the subject, as well as the activities and works proposed to be done on those topics.
Problem solving	Personalized attention to the student in order to solve doubts related to the different lessons, not only when solving exercises but in any stage of the learning process.

Personalized attention	
Methodologies	**Description**
Problem solving	Personalized attention to the student in order to solve the doubts that might appear, not only when solving the exercises but in any stage of the learning process. The TGR may be taught either on person or online, depending on the teaching circumstances.

Assessment			
Methodologies	**Competencies**	**Description**	**Qualification**
Supervised projects	A3 A4 A5 A7 A9 A10 A12 A13 C1 C3 C6 C7 C8	In combination with collaborative learning and under teacher supervision, the student will carry out one or several works in groups (in case of being more than one, at least one will be in groups, allowing for the possibility of individual works) focussed on the learning of "how to do things". It is an option based on the assumption that the students care about their own learning. This teaching method is based on two basic elements: independent learning (students) and monitoring of that learning (teacher-supervisor). The teacher will develop the monitoring of this learning with the aim of assessing the acquisition of the knowledge defined for this category.	15
Mixed objective/subjective test	A4 A5	A mixed test will be carried out, which will correspond to the final exam. As this test is considered essential for the evaluation, it is necessary to obtain at least a 40% of the total mark in order to compute (incorporate) the remaining evaluation activities. As an alternative to this mixed test and with the aim of promoting the continued work by the student, the teacher will propose intermediate mixed tests along the teaching period. Passing all these intermediate tests is equivalent to pass the final test, without prejudice to the possibility of a final test at the first and second opportunity.	50
Workshop	A9 A12 C6 C7	The main objective in these classes will be the realization of especially practical tasks, with the teacher's support and supervision: proposal and solution of applications from the theory, proposal and supervision of works, problems, exercises, presentations, expositions, debates and comments on works, solving doubts about the theory, etc. It is also possible that the teacher explains some concepts, especially for clarifying their application, or in any case as a mere comment about the keynote speech. Evaluation activities will be carried out during these classes; those activities will be individual or group exercises.	35

Assessment comments

- The mixed test will be considered fundamental in the evaluation,
 so it will be necessary to obtain in it a minimum of 40% of the mark to
 compute with the other activities that are evaluated.

- These evaluation criteria correspond to both the first and the
second opportunity. The same criteria will be applied to part-time
students. In any case, part-time students are recommended to talk to the
 subject coordinator to inform them of their situation.

- In the event that there are students who opt for the advance
call, the grading system will be the same. In this case, the activities
of the Workshop and supervised work must be carried out at least 21 days
 before the exam for the advance call.

- The order of the topics in this teaching guide can be modified by
 teaching it in the classroom, depending on the teaching needs that may
arise.

Some general evaluation observations, placed in a homogeneous way with the rest of the teaching guidesA) EVALUATION REGULATIONS:

1. Evaluation conditions: It is forbidden to access the examination room with any device that allows communication with the outside and / or storage of information.

2. Identification of the student: The student must prove his / her personality in accordance with current regulations.

B) TYPES OF GRADINGS:

1. Grade of not presented: It corresponds to the student when it only participates of activities of evaluation that have an inferior weight to 20% on the final qualification, independently of the qualification achieved.

2. Students with recognition of part-time dedication and academic exemption of waiver attendance: It is recommended that you talk to the coordinator of the subject to inform them of their situation and see if they can adapt the evaluation system (Workshop and supervised work).

C) GRADING OPPORTUNITIES:

1. First opportunity: The evaluation criteria will be applied in accordance with those established in the ?Assessment? section.

2. Second opportunity: The evaluation criteria are the same for all evaluation opportunities, and therefore the final exam, considered as a Mixed Test will remain 50% of the grade.

To achieve 100% of the mark in this second opportunity the teacher will indicate which assessment activities will be necessary to carry out.

Students who want to opt for this option must keep in mind that the final mark of continuous assessment will be the one obtained in this second opportunity, losing what was obtained during the first.

3. Advance call: The evaluation criteria are the same for all evaluation opportunities. In the advance call, the activities of the Workshop and supervised work must be carried out at least 21 days before the advance call exam.

D) OTHER EVALUATION OBSERVATIONS: those listed at the beginning of these observations

In addition: in case of fraud (copying, plagiarism, ...) the person who commits it will receive the qualification of failure in the call in which the fault is committed and with respect to the subject in which it was committed: the student will be graded with "suspense" (numerical grade 0) in the call corresponding to the academic year, whether the commission of the fault is committed in the first opportunity as in the second. For this, the student's grade will be modified in the first opportunity report, if necessary.

Sources of information

Basic	Martínez Filgueira, Xosé Ml. Estadística I Economía. Universidade da Coruña. (libro web, consultable en:http://www.estatistica.es/libro/; descargable en http://www.estatistica.es/economia/material/libro.pdf.zip)Espejo Miranda,I et al., (2006) Estadística Descriptiva y Probabilidad. Teoría y Problemas. Cádiz, Universidad de Cádiz. (libro libre, descargable en: http://knuth.uca.es/moodle/course/view.php?id=19)Arriaza Gómez A.J. et al.(2008) Estadística Básica con R y R-Commander. Cádiz, Universidad de Cádiz. (libro libre, descargable en:http://knuth.uca.es/ebrcmdr)
Complementary	- Cao Abad, R. y otros (1998). Estadística básica aplicada. Santiago de Compostela, Tórculo - Gonick, L. y Smith, W. (2001). A Estatística¡en caricaturas!. SGAPEIO y Harper Collins - Newbold, P., Carlson, W. and Thorne, B. (2010). Statistics for business and economics. Pearson/Prentice Hall - Newbold, P. (1997). Estadística para los Negocios y la Economía. Madrid, Prentice Hall PÉREZ, C. (2002) Estadística aplicada a través de Excel. Pearson Educación, Madrid.Charte Ojeda, F. (2008) Calculos Estadísticos con Excel. Anaya Multimedia, Madrid.

Recommendations
Subjects that it is recommended to have taken before
Subjects that are recommended to be taken simultaneously
Subjects that continue the syllabus
Statistics II/611G01014
Other comments
For those students with the entirely subject taught in English, the evaluation criteria will be the ones presented in this guide (that is, they apply for all groups). The support material, in this language, will be   available in the virtual platform of the subject.At the beginning of the second semester, supplementary and explanatory rules will be provided to all the groups (the English group included).