Universida_{de}Vigo

Subject Guide 2017 / 2018

IDENTIFYIN	IG DATA			
Statistical of	operational techniques			
Subject	Statistical			
	operational			
	techniques			
Code	O04G020V01912			
Study	(*)Grao en			
programme	Administración e			
	Dirección de			
	Empresas	,		
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	4th	2nd
Teaching	Spanish			
language	Galician			
Department				
Coordinator	Mosquera Rodríguez, Manuel Alfredo			
Lecturers	Mosquera Rodríguez, Manuel Alfredo			
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Web				
General	It is an optional subject of the second quadme	ster of fourth course of	the degree. It tre	eats of a subject for
description	students that surpassed the three first courses	s, and that therefore the	ey have training	in the disciplines of
	mathematics and statistics.			

Competencies

Code

- B1 Ability to analyse and synthesise
- B2 Critical and self-critical thinking
- B13 Capacity for learning and independent work
- B14 Capacity to apply the theoretical and practical knowledge acquired in a specialised academic context
- C7 Acquire and understand knowledge regarding: The main instrumental techniques applied to the business context
- Identify the generalities of the economic problems posed in companies, and know how to apply the main instruments available in order to address these problems
- C10 Assess the situation and foreseeable evolution of a company based on the relevant information records
- C12 Solve problems effectively and make decisions using the appropriate quantitative and qualitative methods, including the identification, expression and solution of business problems
- C16 Skills in looking for, identifying and interpreting sources of relevant economic information

Learning outcomes		
expected results from this subject Training a		ing and Learning Results
Differentiate between parametric and non parametric contrasts.	B1 B2 B14	C7
Use the independence and homogeneity contrasts for the analysis of the existing relations between two qualitative variables.	B14	C12 C16
Obtain information of a 2 x 2 contingency table.	B14	
Enter to the student in the analysis of tables of contingency n x m	B14	C7 C12 C16
Analyze the results of a contingency table	B1	C7 C12
Handle and apply the techniques of analysis of variance.	B1 B14	C12
Know the value of the fulfillment of the applicability conditions of both analysis of variance and regression models.	B1 B14	C7 C12

Study the bases of the classical statistical models, their utility and limitations, particularly in the		C7	
models of linear regression and general linear regression.	B2	C9	
	B14	C10	
		C12	
		C16	
Use the statistical analysis software			
	B14		
Interpret properly the results provided by the statistical software R	B1	C7	_

Contents		
Topic		
Non parametric statistical methods	Goodness of fit	
	Homogeneity	
	Independence	
Analysis of qualitative data	2 x 2 contingency tables	
	Complex tables	
	The danger of the contingency tables	
Analysis of variance	One-way ANOVA: fix and random effects.	
	Two-way ANOVA	
Regression and correlation	Nonlinear models and transformations	
	Polynomial regression	
	Multiple regression	
	Analysis of the Covariance	
	GLM	

Planning			
	Class hours	Hours outside the classroom	Total hours
Practice in computer rooms	14.5	29	43.5
Troubleshooting and / or exercises	10	8.5	18.5
Autonomous troubleshooting and / or exercises	0	20	20
Master Session	20	40	60
Short answer tests	2	0	2
Multiple choice tests	2	0	2
Troubleshooting and / or exercises	4	0	4

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

Methodologies		
	Description	
Practice in computer rooms	It consists in to solve problems, with the help of the statistical package R, related with the contents of the subject.	
	It allows to the students to implement in an effective form the theoretical knowledges learned in the master sessions through the realization of activities such as exercises and problems.	
Troubleshooting and / or It consists in the manual realization or with the R/*Excel software of problems related with the		
exercises	contents of the subject.	
	It allows to the students to implement in an effective form the theoretical knowledges learned in the master sessions through the realization of activities such as exercises and problems.	
Autonomous	It encompasses the realization of problems related with the contents of the subject.	
troubleshooting and / or	It allows to the students to implement in an effective form the theoretical knowledges learned in	
exercises	the master sessions through the realization of activities such as exercises and problems.	
Master Session	It will consist in the presentation, with the help of practical cases, of the theoretical contents of the subject, complemented with the use of audiovisual media	

Personalized attention			
Methodologies	Description		
Practice in computer rooms	Will carry out an individual analysis of the students by means of his work in the practical groups.		
Autonomous troubleshooting and / or exercises	Will carry out an individual analysis of the students by means of the different works/exercises delivered along the course.		

Assessment		
Description	Qualification	Training and
		Learning Results

Troubleshooting and / or	It consists in the realisation, with the help of the statistical	50	B1	C9
exercises	package R, of problems on the contents of the subject		B2	C10
			B13	C12
			B14	C16
Master Session	It consists in the realisation of short questions or test on the	50	B1	C7
	theoretical contents of the subject		B2	C10
	·		B14	C12

Other comments on the Evaluation

CONTINUOUS EVALUATION:

Practical part: they will realise tests with the computer in the practical classrooms. If the individual grade of each test is greater than or equal to 3 (on 10) then the average of these grades is the grade of the practical part. Otherwise, the note of the practical part will be the minimum between 4 and the average of the grades of the tests.

Theoretical part: it could be an only multiple choice/short answer test at the end of the period or it could consists in the delivery of several works, where the students have to apply the statistical technics seen until the moment. To calculate the note of the theoretical part in the case of the delivery of the works one has to take into account that:

- If the individual grade of each work is greater than or equal to 3 (on 10) then the average of these grades is the grade of the theoretical part.
- Otherwise, the note of the practical part will be the minimum between 4 and the average of the grades of the works.

To pass the subject the student has to reach a minimum grade of 4 in the theoretical part (on 10) and a 5 in the weighted sum of the two grades.

NON CONTINUOUS EVALUATION

There will be an alternative system of evaluation for the students that opt to the non continuous evaluation. It consists in an only test where he/she will be evaluated on the contents studied along the course. The test will conssist in the resolution of practical/theoretical problems having the help of the statistical software R.

JULY EXAM

The system of evaluation of the exam of July will be the that of **NON continuous evaluation** for all the students.

That student that use or cooperate in **fraudulent procedures** (copy, present by another student, plagiarism, ...) in any of the activities of evaluation will be evaluated by the method of **NON continuous evaluation**.

The dates and schedules of the evaluation exams of the different periods are the specified in the calendar of evaluation exams approved by the Board of the Centre for the course 2017-18. In case of conflict or disparity between the dates of the examinations will prevail the indicated in the web of the FCETOU.

Sources of information

Basic Bibliography

Anderson, D.R., Sweeney, D.J. y Williams, T.A., **Estadística para administración y economía**, 11, Cengage Learning, 2011

Newbold, P.; Carlson, W. L. y Thorne, B., **Estadística para Administración y Economía**, 6, Pearson Prentice Hall, 2008 R Development Core Team, **R: A language and environment for statistical computing**, R Foundation for Statistical Computing, 2015

Complementary Bibliography

Lind, D. A., Marchal, W. G., Wathen, S.A., **Estadística aplicada a los negocios y a la economía**, McGraw-Hill, 2012 Peña sanchez, D., **Estadística. Modelos y métodos**, Ed Alianza Universidad, 2000

Vilar Fernández, J.M., **Modelos estadísticos aplicados**, Servicio de Publicaciones da Universidade da Coruñ, 2003 Webster Allen L, **Estadística aplicada a los negocios y a la economía**, McGrawHill Interamericana, 2006

Recommendations

Subjects that it is recommended to have taken before

Statistics: Statistics/O04G020V01204
Mathematics: Mathematics/O04G020V01104

Econometrics/O04G020V01304

Other comments

It will use the platform of virtual teaching *FAITIC of the University of Vigo (faitic.uvigo.es), where the enrrolled students will find all the necessary material for the development of the subject.

Besides, unsuitable behaviours, contrary and hurtful to the school life and his correction will comport that the responsible student/s will be evaluated by the method of NON continuous evaluation, as well as the corresponding disciplinary actions that consider timely.