FACULTAD DE CIENCIAS
ECONÓMICAS Y EMPRESARIALES

SYLLABUS 2016-2017

SYLLABUS OF THE SUBJECT

Course information	
Name	Statistics for Business Administration
Code	
Degree	Degree in Business Administration (ADE)
Year	2º
Semester	1º (E2/E4) 2º (E3)
Credits ECTS	6
Type	Mandatory / half-year
Department	Quantitative Methods
Area	Statistics and Econometrics
Coordinator	Francisco Borrás Palá

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DETAILED INFORMATION ABOUT THE COURSE

Context of the course

Contribution to the professional profile of the degree

Instrumental subject that allows students to recognize the elements in a decision-making process within an uncertainty context, providing tools for:

- Summarizing the statistical information and obtaining measures for it.
- Measuring the uncertainty of random variables
- Analyzing the behavior of random variables
- Producing generalizations out of the information of a sample

It is, on the other hand, a basic tool that students can use in other subjects: Quantitative Methods for Business and Economics, basis of Finance, Corporate Finance, Market Research, etc…., in which the knowledge about reality and the decision-making process about issues that may arise in them are backed by the knowledge about situations and facts characterized by uncertainty.

Prerequisites

Knowledge about mathematical analysis of one and several variables

Skills- Objectives

Generic skills of degree program

Instrumental skills

CGI1 Analysis and synthesis ability

CGI3 Organizational and planning ability

CGI8 Technological knowledge related to the study context

Interpersonal skills

CGP11 Critical and self-critical ability

Systematic skills

CGS14 Ability to learn and work automatically

CGS17 Ability to transmit ideas, projects, reports, problems and solutions

Specific skills of the area-subject

Conceptual (

CE17.1 Ability to treat, synthesize and analyze information

- Knowing, differentiating and using the statistical concepts for the analysis of the information, for the identification of variables, for the codification and systematic presentation of data.

CE17.2 Knowledge about random phenomena

- Recognizing the uncertainty situation of a random phenomena
- Knowing the basic concepts of the probability theory

CE17.3 Know and differentiate different process of statistical inference

- Knowing the characteristics and the consequences of the simple random sampling.
- Recognizing and differentiate the basic objectives and approaches of inference methods.

Procedural
- Deducing relevant statistical information of a data set. Analyzing and interpret the relationships among several variables. - Knowing the different results or events of a random phenomena and being able to carry out operations with them and their probabilities. - Elaborating the probability distribution of random variables. - Determining probabilities in the case of simple random sampling. - Applying different estimation and contrast methods, proper for the type of available information and for the intended objectives.
Attitudinal
- Valuing the utility of the statistical procedures in the analysis of real problems and in the decision-making processes. - Identification of the learning evolution and organizing the needed tasks for the best realization of different activities. - Recognize the utility and applicability of the statistical knowledge in other areas.

COURSE CONTENT

Program
1. DATA DESCRIPTION
Topic 1: Statistics and data analysis in Big Data era
1.1 Big Data 1.2 Examples of applications
Topic 2: Numerical and graphical description of frequency distributions
2.1 Variables and Data classification 2.2 Data organization: frequency tables and graphs 2.Numerical summary of data: central tendency measures and position measures, dispersion measures, form measures, concentration measures. 2.4. Dependence analysis between two variables.
2. PROBABILITY THEORY
Topic 3: Probability
3.1 Random phenomena and events 3.2 Probability concept and conceptions 3.3 Probability rules 3.4 Rectification of an event probability. Bayes Theorem
Topic 4: Random Variables
4.1 Random variables 4.2. Discrete random variables. Some models of discrete variables 4.3. Continuous random variables. Some models of continuous variables
3. ESTATISTICAL INFERENCE
Topic 5: Introduction to inference and to simple random sampling
5.1 Descriptive inferential statistics 5.2 Basic concepts of inference 5.3 The simple random sampling 5.4 Statistic distribution
Topic 6: Parameters' estimation
6.1 Estimation and estimated value. Punctual and Interval estimation. 6.2 Methods to obtain punctual estimators. 6.3 Properties of punctual estimators: unbiasedness, efficiency and consistency 6.4 Basic concepts in confidence intervals: confidence, width, error margin 6.5 Some confidence intervals 6.5 Determination of the necessary sample size in confidence intervals
Topic 7: Hypothesis testing
7.1 Basic concepts: null and alternative hypothesis, type I error and type II error, significance level and power of a test. 7.2 Concept of p-value 7.3 Some parametric testing 7.4 Some non-parametric testing

TEACHING METHODOLOGY

Methodological general aspects of the subject	
Classroom Methodology: Activities	**Competences**
Presentation about the general context of every topic getting deep into key concepts Realization and discussion of examples of practical application in order to get deep into concepts Basic introduction to the use of technological applications for the statistical treatment of data. Realization of elemental level online tests in order to review the concepts learned in every lecture class. Correction in class after doing them in order to provide students information about their learning process. Correction of online workshops that students have made each weekend, with the purpose of providing information about their learning process. Realization of two or three intermediate tests of thematic blocks of the subject. Correction of tests in class. Realization of the final exam of the subject	CE17.1 Ability to treat, synthesize and analyze the information CE17.2 Knowledge about random phenomena CE17.3 Knows and differentiate the different processes of statistical inference CGI1 Ability to synthesize and analyze CGI8 Technological knowledge related to the area of study CGP11 Critical and self-critical capacity CGS17 Ability to transmit ideas, projects, reports, problems and solutions
Out of Classroom Methodology: Activities	**Competences**
Study and understanding of concepts explained in class, taking advantage of the information provided by continuous evaluation. Practical application of technological tools presented in class. Resolution of doubts in groups or individually in office hours.	CE17.1 Ability to treat, synthesize and analyze the information CE17.2 Knowledge about random phenomena CE17.3 Knows and differentiate the different processes of statistical inference CGI1 Ability to synthesize and analyze

Realization of an online workshop per week each weekend. They will be more complex activities than those in the online tests. Some of them will require technological applications for the treatment of statistical data. Preparation for the final exam.	CGI3 Organizing and planning ability CGI8 Technological knowledge related to the area of study Critical and self-critical capacity CGS14 Ability to learn and work autonomously CGS17 Ability to transmit ideas, projects, reports, problems and solutions

GRADING CRITERIA

Grading activities	Criteria	Weight
Online Test in class: T An online test will be performed at the end of some classes. Correct answers will be commented in class after doing it.	Absorbs the basic concepts explained in class	**10%** Every test not done will mark as a "0".
Online Workshop: H (weekend) A workshop will be carried out each weekend (online). It will have multiple choice answers and correct automatization. Answers will be commented in the next class.	- Absorbs and understands all concepts of the week - Applies technological tools	**20%** Every workshop not done will mark as a "0".
Tests in Class: P A test will be performed at the end of every thematic block. There will be 2 or 3 in the semester	Absorbs and understands the concepts in a thematic block.	**15%** Every test not done will mark as a "0".
Written exam: E A final exam will be performed at the end of the course (common to the corresponding groups), whose context is the whole subject.	- Understanding of the concepts - Base of the claims made	**55%** **VERY IMPORTANT: The exam must have a mark at least of 5 out of 10, in order to pass the subject**
EXTRAORDINARY EXAM: For the evaluation of this exam, the same grading system as in the normal exam will be applied for this one (same weights). The philosophy that states that continuous work is part of the learning process of the subject lies behind.		

SUMMARY OF WORKING HOURS OF THE STUDENT			
HOURS IN CLASS			
Lecture classes	**Practical classes**	**Activities academically managed**	**Grading**
30 h	30 h		10 h
HOURS OUT OF CLASS			
Autonomous work about theoretical content	**Autonomous work about practical content**	**Group workshops**	**Study**
30 h	30 h		20 h
		6 CREDITS ECTS:	**150 h**

BIBLIOGRAPHY

Basic Bibliography

Text Books

- *Estadística para administración y Economía.8ª edición (castellano)* **.Newbold,P; Carlson,W.L.;Thorne, B..** Edit.Pearson Prentice Hall
- *Statistics for Business and Economics.8ª Edition (English).* **Newbold,P; Carlson,W.L.;Thorne, B..** Edit.Pearson Prentice Hall
- *Estadística: Problemas resueltos***. Peralta, M.J; Rua Vieites, A.; Redondo Palomo, R.; del Campo Campos, C.** Editorial Pirámide (2007**)**

Notes

Other materials

Available material in the Intranet

Complementary Bibliography

Text Books

- *Introducción a la estadística económica y empresarial (teoría y práctica)***. Martín Pliego, J.** Editorial Thomson.(2004)
- *Fundamentos de Probabilidad*. 2ª edición **Martín Pliego, J., Ruiz Maya, L**. Editorial Thomson. (2006)
- *Fundamentos de Inferencia Estadística*. 3ª edición **Martín Pliego, J., Ruiz Maya, L**. Editorial Thomson (2004).
- *Inferencia Estadística*. **Casas Sánchez, J.M**. Editorial Centro de Estudios Ramón Areces (1997)
- *Ejercicios de inferencia estadística y muestreo para economía y administración de empresas*. **Casas Sánchez, J.M; García Pérez, C; Rivera Galicia, L; Zamora Sanz, A** (2006). Edit. Pirámide

Notes

Other materials