



TECHNICAL SHEET OF THE SUBJECT

Data of the subject	
Subject name	Business Statistics
Subject code	E000005832
Main program	Bachelor's Degree in Business Administration and Management
Involved programs	Grado en Administración y Dirección de Empresas (E-2) [Segundo Curso] Grado en Administración y Dirección de Empresas y Grado en Derecho (E-3) [Segundo Curso] Grado en Administración y Dirección de Empresas y Grado en Derecho (E-3 16) [Tercer Curso] Grado en Administración y Dirección de Empresas con Mención en Internacional (E-4) [Segundo Curso] Grado en Administración y Dirección de Empresas y Grado en Relaciones Internacionales (E-6) [Segundo Curso] Grado en Administración y Dirección de Empresas y Grado en Relaciones Internacionales (E-6) [Tercer Curso] Grado en Administración y Dirección de Empresas (E-2) - Bilingüe en inglés [Segundo Curso]
Level	Reglada Grado Europeo
Quarter	Semestral
Credits	6,0 ECTS
Type	Obligatoria (Grado)
Department	Departamento de Métodos Cuantitativos
Coordinator	Francisco Borrás Palá
Office hours	pedir cita (fborras@icade.comillas.edu)

Teacher Information	
Teacher	
Name	Antonio Rúa Vieites
Department	Departamento de Métodos Cuantitativos
Office	Alberto Aguilera 23 [OD-419]
E-Mail	rvieites@icade.comillas.edu
Teacher	
Name	José María Ortiz Lozano
Department	Universidad Pontificia Comillas
Office	Alberto Aguilera 23 Cantoblanco Ext. 2535
E-Mail	jmortiz@comillas.edu
Phone	6104
Teacher	
Name	Carlos Álvarez Fernández
Department	Departamento de Métodos Cuantitativos



Office	Alberto Aguilera 23
E-Mail	calvarez@icade.comillas.edu
Phone	
Teacher	
Name	Eduardo César Garrido Merchán
Department	Departamento de Métodos Cuantitativos
E-Mail	ecgarrido@icade.comillas.edu
Teacher	
Name	Francisco Borrás Palá
Department	Departamento de Métodos Cuantitativos
Office	Alberto Aguilera 23 [CD-427]
E-Mail	fborras@icade.comillas.edu
Teacher	
Name	Jenny Alexandra Cifuentes Quintero
Department	Departamento de Métodos Cuantitativos
E-Mail	jacifuentes@icade.comillas.edu
Teacher	
Name	Leandro Sergio Escobar Torres
Department	Departamento de Métodos Cuantitativos
Office	Alberto Aguilera 23
E-Mail	lescobar@icade.comillas.edu
Phone	
Teacher	
Name	Lucía Barcos Redín
Department	Departamento de Gestión Empresarial
Office	Alberto Aguilera 23 [C-429]
E-Mail	lbarcos@icade.comillas.edu
Phone	2282
Teacher	
Name	Tomás Curto González
Department	Departamento de Métodos Cuantitativos
Office	Alberto Aguilera 23 [CD-435]
E-Mail	tcurto@icade.comillas.edu

SPECIFIC DATA OF THE SUBJECT



Contextualization of the subject

Contribution to the professional profile of the degree

Subject of instrumental character that allows to know the elements that take part in the business decision making in uncertainty environment, providing tools for: Summarize the statistical information and obtain measures of it Measure the uncertainty of random phenomena Analyze the behavior of random variables Produce generalizations from sample information It is, on the other hand, a basic tool for its use in other matters: Quantitative Models for the Economy and Business, Fundamentals of Finance, Corporate Finance, Market Research, etc. ..., in which knowledge of reality and Decision-making on issues addressed in them are based on the knowledge of situations and events characterized by uncertainty.

Prerequisites

Knowledge of mathematical analysis of one and several variables.

Competencies - Objectives

Competences

GENERALES

CG01	Capacidad de análisis y síntesis	
	RA1	Analiza la información identificando sus elementos más significativos
	RA2	Realiza la abstracción y simplificación necesaria para modelizar estadísticamente el problema real planteado
	RA3	Integra el análisis gráfico, verbal y los datos cuantitativos y cualitativos para definir el modelo estadístico apropiado al problema
CG08	Conocimientos de informática relativos al ámbito de estudio	
	RA1	Conoce y emplea de forma suficiente herramientas informáticas de uso común para el análisis estadístico

ESPECÍFICAS

CE10	Capacidad para tratar, sintetizar y analizar la información. Conociendo los fenómenos aleatorios y los procesos de inferencia estadística	
	RA1	Conoce, diferencia y emplea los conceptos estadísticos para el análisis de la información- Identificación de variables, codificación y presentación sistemática de los datos
	RA2	Deduca información estadística relevante de un conjunto de datos
	RA3	Analiza e interpreta correctamente las relaciones entre distintas variables
	RA4	Comprende y aplica correctamente los conceptos fundamentales de la teoría de la probabilidad
		Comprende el concepto de variable aleatoria, discreta o continua, y elabora correctamente su distribución



RA5	Comprende el concepto de variable aleatoria, discreta o continua, y elabora correctamente su distribución de probabilidad.
RA6	Conoce la distribución de probabilidad conjunta de dos variables, analizando correctamente las relaciones de asociación y/o dependencia entre ellas
RA7	Conoce distintos tipos de muestreo. Determina correctamente probabilidades en el caso de Muestro Aleatorio Simple
RA8	Reconoce y diferencia la aplicación de distintos métodos de estimación y contrastación, adecuados al tipo de información disponible y a los objetivos pretendidos.
RA9	Aplica correctamente los métodos de inferencia a situaciones reales sencillas, tomando decisiones oportunas e interpretándolas correctamente

THEMATIC BLOCKS AND CONTENTS

Contents - Thematic Blocks

PART 1: DATA DESCRIPTION

Topic 1: Statistics and data analysis in the era of big data

1.1. Big Data

1.2. Application examples

Topic 2: Descriptive statistics

2.1. Basic concepts

2.1. Classifications of variables and data.

2.2. Frequencies.Frequency tables

2.4. Graphs

2.5. Numerical summary of the data: measures of central tendency and position, measures of dispersion, measures of form, measures of concentration.

2.6. Analysis of the dependence between two variables

2.7. Weighted mean and geometric mean

PART 2: PROBABILITY THEORY

Topic 3: Uncertainty and its measure

3.1. Random phenomena and events

3.2. Concept of probability and its axioms

3.3. Conceptions of probability

- 3.4. Practical rules of the probability
- 3.5. Important details when working with events and probabilities
- 3.6. Conditional probability. Independent events
- 3.7. Rectification of the probability of an event. Bayes theorem

Topic 4: Random Variables

- 4.1. Basic concepts
- 4.2. Discrete random variable
- 4.3. Some models of discrete variable: Binomial and Poisson
- 4.4. Continuous random variable
- 4.5. Some models of continuous variable: Uniform and Normal

PART 3: STATISTICAL INFERENCE

Topic 5: Introduction to inference and simple random sampling

- 5.1. Basics of inference
- 5.2. Simplified random sampling
- 5.3. Distribution of sample
- 5.4. Distribution of statistics

Topic 6: Parameter estimation

- 6.1. Estimation
- 6.2. Methods for obtaining point estimators
- 6.3. Properties of point estimators
- 6.4. Confidence intervals

TEACHING METHODOLOGY

General methodological aspects of the subject

The methodology is varied, combining face-to-face and non-face-to-face, individual and group, conceptual and practical application activities using data and computer applications.

In-class Methodology: Activities

- Keynote presentation of the general framework of each topic deepening the key concepts
- Realization and discussion of examples of practical application to deepen the concepts



<p>Basic introduction to the use of computer applications for statistical data processing</p> <p>Performing small online elementary level tests to review the concepts developed in each master class. Immediately after, they will be corrected in class to provide students with information about their learning</p> <p>Performing exercises and / or case studies in class</p> <p>Resolution of doubts of online practices, in order to provide information about their learning</p> <p>Two or three intermediate tests of the basic blocks of the subject</p> <p>Completion of the final exam of the subject</p>	CG01, CG08, CE10
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Non-Presential Methodology: Activities

<p>Study and deepening of concepts Practical application of computer tools presented in class</p> <p>Consultation of specific questions in individual or group tutoring Online practice</p> <p>They will be more complex tests than online class tests. Some of them will require the application of computer applications for statistical data processing</p> <p>Performing exercises and / or case studies outside of class</p> <p>Final exam preparation</p>	CG01, CG08, CE10
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SUMMARY STUDENT WORKING HOURS

CLASSROOM HOURS		
Lecciones de carácter expositivo	Ejercicios y resolución de casos y de problemas	
40.00	50.00	
NON-PRESENTIAL HOURS		
Ejercicios y resolución de casos y de problemas	Estudio individual y/o en grupo y lectura organizada	Trabajos monográficos y de investigación, individuales o colectivos
30.00	30.00	30.00
ECTS CREDITS: 6,0 (180,00 hours)		

EVALUATION AND CRITERIA

Evaluation activities	Evaluation criteria	Weight
<p>FINAL EXAM: A final exam of the subject will be carried out (common to the corresponding groups), whose content is the entire program.</p> <p>Score from 0 to 10. It will consist of majority of multiple choice questions and some open questions</p>	<p>Priority will be given to the understanding of the concepts and their application in practical cases, over mere numerical calculation. VERY IMPORTANT: The exam must have a grade of at least 4.50 out of 10 to pass the subject.</p>	55
	<p>Priority will be given to the understanding of the</p>	



<p>CONTINUOUS EVALUATION TESTS: 6 to 7 tests will be carried in the semester (one or two per topic approximately). It will consist of majority of multiple choice questions and some open questions</p>	<p>concepts and their application in practical cases, over mere numerical calculation.</p> <p>In the case of not being able to perform any test for any circumstance, it will not be allowed to recover it at another time and your rating will be "0". For the average of these tests, the worst grade will be eliminated. For the average of these tests, the worst grade will be eliminated, except for the last test, which will always be included in average.</p> <p>Oral defense may be requested when they are done outside the classroom</p>	<p>20 %</p>
<p>ACTIVE STUDENT PARTICIPATION IN CLASS: To evaluate it, exercises / case studies and online learning games will be carried out (some of them can be collaborative),</p>	<p>Priority will be given to the understanding of the concepts and their application in practical cases, over numerical calculation.</p> <p>Oral defense may be requested when they are done outside the classroom</p>	<p>10 %</p>
<p>GROUP WORK OUTSIDE THE CLASSROOM:</p> <p>Practical work in group, with the objective of statistical treatment of real data</p>	<p>All work not done will be scored with "0".</p> <p>Teacher reserves the right to request an oral defense of the practical work of the subject, which may modify the work grade.</p>	<p>15 %</p>

Ratings

ORDINARY AND EXTRAORDINARY CALL:

For the evaluation of both calls, the same rating system will be followed (same weights as previously shown). Underlines the philosophy that continued work is part of the learning of the subject.

To pass the course, the average grade considering all the evaluation items must be at least 5. **The exam must have a grade of at least 4.50 out of 10 to pass the subject in both calls.**

EXCHANGE STUDENTS (OUT) AND REST OF CALLS:

The final grade will be 100% the grade of the exam, unless they agree with the teacher to perform the class tests. In that case the grade will be the best between these 2 options:

- 100% exam

- 70% exam-30% class tests)

WORK PLAN AND SCHEDULE

Activities	Date of realization	Delivery date
Final delivery practical work	3rd week to 8th week	In the 8th week of the semester on the date determined by the teacher of each group

BIBLIOGRAPHY AND RESOURCES

Basic Bibliography

- *Estadística Empresarial en 101 ejemplos (volumen I)*. **Borrás Palá, F.; Martínez de Ibarrea Zorita, C; Escobar Torres, L.S.**, Edit EV Services
- *Estadística Empresarial en 101 ejemplos (volumen II)*. **Borrás Palá, F.; Martínez de Ibarrea Zorita, C; Escobar Torres, L.S.**, Edit EV Services
- *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)

Complementary Bibliography

- *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

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