

# Course guide

Year 2023/2024 301202 - Descriptive Statistics

# Information about the subject

Degree: Bachelor of Science Degree in Business Administration and Management

Faculty: Faculty of Legal, Economic and Social Sciences

Code: 301202 Name: Descriptive Statistics

Credits: 6,00 ECTS Year: 2 Semester: 1

Module: Quantitative Methods

Subject Matter: Statistics Type: Basic Formation

Field of knowledge: Ingeniería y Arquitectura

Department: -

Type of learning: Classroom-based learning / Online

Languages in which it is taught: English, Spanish

#### Lecturer/-s:

302A	María Aránzazu Juan Blanco (Responsible Lecturer)	ma.juan@ucv.es
302B	Alberto Sanz Cazorla (Profesor responsable)	alberto.sanz@ucv.es
312D	Alberto Sanz Cazorla (Profesor responsable)	alberto.sanz@ucv.es
30GI2	Alberto Sanz Cazorla (Profesor responsable)	alberto.sanz@ucv.es
31GI2	Alberto Sanz Cazorla (Profesor responsable)	alberto.sanz@ucv.es





# Module organization

## **Quantitative Methods**

Subject Matter	ECTS	Subject	ECTS	Year/semester
Information Systems	12,00	Information Systems for Management I	6,00	1/2
		Information Systems for Management II	6,00	2/1
Mathematics	6,00	Mathematics for Economics and the Business	6,00	1/1
Statistical and Econometric Methods	12,00	Econometrics	6,00	4/1
		Statistical Inference	6,00	3/2
Statistics	6,00	Descriptive Statistics	6,00	2/1

## Recommended knowledge

The subject is taught without assuming previous knowledge of statistics or probability, although it is assumed that students are familiar with the use of the spreadsheet, mainly through the subject of Excel in the first year and, by the use they have made of it in the subject of Business Mathematics in the first year.





## Learning outcomes

At the end of the course, the student must be able to prove that he/she has acquired the following learning outcomes:

- R1 Understand the tools of descriptive statistics (tables, graphs and statistics) and know where to apply in every case.
- R2 Can understand and develop a descriptive study of a random variable.
- R3 Can understand, quantify and express the linear relationship between two numerical variables.
- R4 Understand the basic principles of probability theory and can apply them to solve simple problems.
- R5 Understands and applies basic concepts of random variable and probability distribution. Knows the main discrete distributions (Binomial, Poisson and geometric) and continuous (Uniform, Exponential and Normal).





# Competencies

Depending on the learning outcomes, the competencies to which the subject contributes are (please score from 1 to 4, being 4 the highest score):

BASIC		Weighting			3	
			1	2	3	4
CB1	That students have demonstrated knowledge and understanding in an area of study that is at the core of general secondary education, and is often at a level that, while supported by advanced textbooks, also includes some aspects that involve knowledge from the cutting edge of their field of study.				x	
CB2	That students know how to apply their knowledge to their work or vocation in a professional way and possess the skills that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of study.					X
CB3	That students have the ability to gather and interpret relevant data (usually within their area of study) to make judgments that include reflection on relevant social, scientific or ethical issues.					X
CB4	That students can convey information, ideas, problems and solutions to both specialized and non-specialized audiences.					X
CB5	That students have developed those learning skills necessary to undertake further studies with a high degree of autonomy.					x

GENEF	RAL	Weighting
		1 2 3 4
CG0	Speaking well in public.	x
CG1	Capacity of analysis and synthesis.	x
CG3	Capacity to apply knowledge into practice.	x
CG5	Oral and written communication.	x
CG6	Use of ICTs	x





CG7	Information management.	- - - - -	- - - - - - -	x
CG8	Orientation to problem-solving.			x
CG11	Creativity and ability to generate new ideas.	x		
CG13	Ability to learn and research skills.		x	
CG18	Ability to obtain, from the data, valuable information for decision	x		

SPECIFI	c	Weighting
		1 2 3 4
CE14	To understand the potential impact of aspects related to the macro- and microeconomic environment and its institutions on business organizations (e.g. the monetary and financial system, domestic markets)	X
CE15	Ability to obtain, from the data, valuable information for decision making.	x
CE17	Application of professional criteria to the analysis of business problems.	X
CE18	Ability to integrate in any functional area of a company and develop different tasks related to its management.	X





# Assessment system for the acquisition of competencies and grading system

## In-class teaching

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R3, R4, R5	15,00%	Objective Tests
R1, R2, R3, R4, R5	25,00%	Conduct of Theory-Practice
R1, R2, R3, R4, R5	10,00%	Class attendance and participation
R1, R2, R3, R4, R5	50,00%	Final Exam

## **Observations**

1) In order to pass the subject, it will be an essential requirement obtaining at least 5 points out of 10 in the final exam of the subject in any of its two calls. In case of failing the final exam, the weighted final grade of the course may not exceed 4.9 points.

2) Because of its very nature, continuous evaluation (attendance and participation in class, theoretical-practical activities and objective tests) is not recoverable. The score obtained in this section will therefore be maintained in both first and second calls.

## **Online teaching**

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R3, R4, R5	5,00%	Attendance and participation in the activities of synchronous communication
R1, R2, R3, R4, R5	25,00%	Conduct of deliverables
R1, R2, R3, R4, R5	15,00%	Regular evaluations through online questionnaires.
R1, R2, R3, R4, R5	5,00%	Participation in discussion forums
R1, R2, R3, R4, R5	50,00%	Final on-site assessment.





## Observations

In order to pass the course, it will be mandatory to have submitted and pass the proposed activities throughout the course. In any case, the students will have to pass the final written exam.

## **MENTION OF DISTINCTION:**

According to Article 22 of the Regulations governing the Evaluation and Qualification of UCV Courses, the mention of "Distinction of Honor" may be awarded by the professor responsible for the course to students who have obtained, at least, the qualification of 9 over 10 ("Sobresaliente"). The number of "Distinction of Honor" mentions that may be awarded may not exceed five percent of the number of students included in the same official record, unless this number is lower than 20, in which case only one "Distinction of Honor" may be awarded.

## Learning activities

The following methodologies will be used so that the students can achieve the learning outcomes of the subject:

M1 Problem solving, commentaries, summaries to hand in periodically. M3 Teacher presentation of contents, analysis of competences, explanation and in-class display of skills, abilities and knowledge. M5 Group work sessions supervised by the professor. Case studies, diagnostic tests, problems, field work, computer room, visits, data search, libraries, on-line, Internet, etc. Meaningful construction of knowledge through interaction and student activity. M7 Supervised monographic sessions with shared participation. M9 Application of multidisciplinary knowledge. M11 Personalized and small group attention. Period of instruction and / or orientation conducted by a tutor with the objective of reviewing and discussing the materials and topics presented in classes, seminars, readings, conducting work, etc. M13 Set of oral and/or written tests used in initial, formative or additive assessment of the student.





- M14 Student study: Group Individual preparation of readings, essays, problem solving, seminars, papers, reports, etc. to be presented or submitted in theoretical lectures, practical and/or small-group tutoring sessions.
- M16 Group preparation of readings, essays, problem solving, seminars, papers, reports, etc. to be presented or submitted in theoretical lectures, practical and/or small-group tutoring sessions.
- M17 Teacher presentation of contents, analysis of competences, explanation and in-class display of skills, abilities and knowledge.
- M19 Groupwork sessions in the chat under supervision of the lecturer. Analysis of economic and business case studies, both real and fictitious, in order to build knowledge through the student's interaction and activity. Critical analysis of values and social commitment.
- M21 Monographic sessions though the semester, which will be aimed at current aspects and applications of the subject.
- M23 Set of written or oral tests used for the initial, formative or cumulative assessment of the student.
- M25 Student study: Individual preparation of readings, essays, problem solving, seminars, papers, reports, etc., for their discussion or submission in electronic format.
- M27 Individual support for the monitoring and orientation of the learning process. It will be carried out by a lecturer and will pursue the revision and discussion of the materials, topics, readings, tasks, etc.
- M29 Group preparation of readings, essays, problem solving, seminars, papers, reports, etc., for their discussion or submission.
- M31 Participation in discussion forums related to the subject under the supervision of the lecturer.





## IN-CLASS LEARNING

## **IN-CLASS LEARNING ACTIVITIES**

	LEARNING OUTCOMES	HOURS	ECTS
On-campus Class M1, M3	R1, R2, R3, R4, R5	22,50	0,90
Practical Class M5, M16, M19	R1, R2, R3, R4, R5	15,00	0,60
Seminar M7, M21, M29	R1, R2, R3, R4, R5	4,50	0,18
Group Presentation of Papers M1, M16, M19, M29, M31	R1, R2, R3, R4, R5	6,00	0,24
Office Assistance M11, M27	R1, R2, R3, R4, R5	6,00	0,24
Assessment M13, M23	R1, R2, R3, R4, R5	6,00	0,24
TOTAL		60,00	2,40

## LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
Group Work M1, M14, M25, M31	R1, R2, R3, R4, R5	30,00	1,20
Independent Work M1, M14, M25	R1, R2, R3, R4, R5	60,00	2,40
TOTAL		90,00	3,60





## **ON-LINE LEARNING**

## SYNCHRONOUS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Synchronous Virtual Session <sup>M3, M17</sup>	R1, R2, R3, R4, R5	4,00	0,16
Synchronous Vitual Practical Session M5, M16, M19	R1, R2, R3, R4, R5	4,00	0,16
Seminar and Synchronous Virtual Videoconference <sup>M7, M21</sup>	R1, R2, R3, R4, R5	4,00	0,16
On-site or Synchronous Virtual Assesment M13, M23	R1, R2, R3, R4, R5	3,00	0,12
TOTAL		15,00	0,60

## **ASYNCHRONOUS LEARNING ACTIVITIES**

	LEARNING OUTCOMES	HOURS	ECTS
Individual Work M14, M25, M31	R1, R2, R3, R4, R5	60,00	2,40
Tutorial Support Sessions M11, M27	R1, R2, R3, R4, R5	5,00	0,20
Group Work M16, M19, M31	R1, R2, R3, R4, R5	10,00	0,40
Discussion Forum	R1, R2, R3, R4, R5	10,00	0,40
Continuous Assessment Tasks	R1, R2, R3, R4, R5	50,00	2,00
TOTAL		135,00	5,40





# Description of the contents

Description of the necessary contents to acquire the learning outcomes.

## Theoretical contents:

Content block	Contents		
1 Data Description: frequencies and its representation	Understand why knowledge of statistics is important. Descriptive vs inferential statistics. Qualitative vs quantitative, and discrete vs continuous.		
2 Description of data: numerical measures	Frequency tables and its representation Summarize quantitative variables with frequency and relative frequency distributions. Display a frequency distribution of quantitative data		
3 Data Description: presentation and analysis	Explain the characteristics, uses, advantages and disadvantages of each location measure. Computation and interpretation of bias, range, mean deviation, variance, and standard deviation. Understand the characteristics, uses, advantages, and disadvantages of each measure of dispersion Bivarariate data description: Correlation, mean comparison and percentage comparisons		
4 Probability concepts	Define the term probability. Describe the classical, empirical and subjective approaches to probability. Conditional vs. joint probability. Calculate probabilities : rules of addition and rules of multiplication. Bayes' theorem.		





5 Discrete probability distributions	Define the terms probability distribution and random variable. Distinguish between continuous and discrete probability		
	distributions.		
	Calculate the mean, variance, and standard deviation of a discrete probability distribution		
	Binomial probability distribution and its application in probability calculations.		
	Poisson probability distribution and its application in the probability calculation.		
6 Continuous probability distributions	Describe the uniform probability distribution and use it to calculate probabilities.		
	Describe the characteristics of a normal probability distribution.		
	Describe the standard normal probability distribution and use it to calculate probabilities.		
	Describe the exponential probability distribution and use it to calculate probabilities.		

# Temporary organization of learning:

Block of content	Number of sessions	Hours
1 Data Description: frequencies and its representation	4,00	8,00
2 Description of data: numerical measures	5,00	10,00
3 Data Description: presentation and analysis	9,00	18,00
4 Probability concepts	3,00	6,00
5 Discrete probability distributions	3,00	6,00
6 Continuous probability distributions	6,00	12,00





## References

· Class lectures and materials provided by the professor BASIC BIBLIOGRAPHY:

·Lind, D. A., Marchal, W. G., & Wathen, S. A. . *Statistical techniques in business & economics*. New York, NY: McGraw-Hill Last Edition

Newbold, Paul, Carlson, William L. & Thorne, Betty (2013) Statistics for Business and Economics. Pearson Prentice Hall / 8th global edition/

## ADDITIONAL BIBLIOGRAPHY:

Gujarati, D. N., & Porter, D.. Basic Econometrics Mc Graw-Hill International Last Edition.
González, G. M. (2007). *Introducción a la estadística*. Universidad Católica de Valencia.
Berenson, M. L., Levine, D. M., & Krehbiel, T. C.. *Estadística para administración*. Pearson Education. Last Edition

·Parra Frutos, I. (2003). Estadística empresarial con Microsoft® Excel: Problemas de inferencia. AC Libros científicos y técnicos

·Montiel Torres, A. M., Barón López, F. J., & Rius Díaz, F. (1997). *Elementos básicos de estadística económica y empresarial*. PRENTICE HALL





## Addendum to the Course Guide of the Subject

Due to the exceptional situation caused by the health crisis of the COVID-19 and taking into account the security measures related to the development of the educational activity in the Higher Education Institution teaching area, the following changes have been made in the guide of the subject to ensure that Students achieve their learning outcomes of the Subject.

## Situation 1: Teaching without limited capacity (when the number of enrolled

## students is lower than the allowed capacity in classroom, according to the security

#### measures taken).

In this case, no changes are made in the guide of the subject.

## Situation 2: Teaching with limited capacity (when the number of enrolled

#### students is higher than the allowed capacity in classroom, according to the security

#### measures taken).

In this case, the following changes are made:

## 1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject will be made through a simultaneous teaching method combining onsite teaching in the classroom and synchronous online teaching. Students will be able to attend classes onsite or to attend them online through the telematic tools provided by the university (videoconferences). In any case, students who attend classes onsite and who attend them by videoconference will rotate periodically.

In the particular case of this subject, these videoconferences will be made through:



**Microsoft Teams** 



Kaltura





## Situation 3: Confinement due to a new State of Alarm.

In this case, the following changes are made:

## 1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject, as well as the group and personalized tutoring, will be done with the telematic tools provided by the University, through:



**Microsoft Teams** 



Kaltura

Explanation about the practical sessions:





# 2. System for Assessing the Acquisition of the competences and Assessment System

**ONSITE WORK** 

## **Regarding the Assessment Tools:**

Х

The Assessment Tools will not be modified. If onsite assessment is not possible, it will be done online through the UCVnet Campus.



The following changes will be made to adapt the subject's assessment to the online teaching.

Course guide		Adaptation		
Assessment tool	Allocated percentage	Description of the suggested changes	Platform to be used	

The other Assessment Tools will not be modified with regards to what is indicated in the Course Guide.

## Comments to the Assessment System:





## ONLINE WORK

#### **Regarding the Assessment Tools:**



The Assessment Tools will not be modified. If onsite assessment is not possible, it will be done online through the UCVnet Campus.



The following changes will be made to adapt the subject's assessment to the online teaching.

Course guide		Adaptation		
Assessment tool	Allocated percentage	Description of the suggested changes	Platform to be used	

The other Assessment Tools will not be modified with regards to what is indicated in the Course Guide.

#### Comments to the Assessment System: