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: Estadística **Type:** Basic Formation

Department: Economics, Business Management, and Marketing

Type of learning: Classroom-based learning / Online

Languages in which it is taught: English, Spanish

Lecturer/-s:

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Module organization

Quantitative Methods

Subject Matter	ECTS	Subject	ECTS	Year/semester
Informática	12,00	Information Systems for Management I	6,00	1/2
		Information Systems for Management II	6,00	2/1
Matemáticas	6,00	Mathematics for Economics and the Business	6,00	1/1
Métodos Estadísticos y Econométricos	12,00	Econometrics	6,00	4/1
		Statistical Inference	6,00	3/2
Estadística	6,00	Descriptive Statistics	6,00	2/1

Recommended knowledge

The course is taught without assuming any prior knowledge of statistics or probability. However, it is expected that students are familiar with the use of spreadsheets, as covered in the courses *Information Systems for Management I* and *II*.
Students should also know how to download and unzip .zip files on their computers, as well as how to save and locate files on a personal computer.

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 Demostrar poseer y comprender conocimientos en un área de estudio que parte de la base de la educación secundaria general, y se suele encontrar a un nivel que, si bien se apoya en libros de texto avanzados, incluye también algunos aspectos que implican conocimientos procedentes de la vanguardia de su campo de estudio. [RAB1]

R2 Aplicar correctamente sus conocimientos a su trabajo o vocación de una forma profesional y ser capaz de elaborar y defender argumentos y resolver problemas dentro de su área de estudio. [RAB2]

R3 Ser capaz de recopilar e interpretar datos relevantes (normalmente dentro de su área de estudio) para emitir juicios que incluyan una reflexión sobre temas relevantes de índole social, científica o ética. [RAB3]

R4 Ser capaz de transmitir información, ideas, problemas y soluciones a un público tanto especializado como no especializado tanto en español como en inglés. [RAB4]

R5 Demostrar un alto grado de autonomía en el aprendizaje. [RAB5]

R6 Elaborar respuestas teórico-prácticas basadas en la búsqueda sincera de la verdad plena y la integración de todas las dimensiones del ser humano ante las grandes cuestiones de la vida. [RAT1]

R7 Aplicar los principios derivados del concepto de ecología integral en sus propuestas o acciones, sea cual sea el alcance y el área de conocimiento y los contextos en las que se planteen. [RAT2]

R8 Respetar y poner en práctica los principios éticos y las propuestas de acción derivados de los objetivos para el desarrollo sostenible transfiriéndolos a toda actividad académica y profesional. [RAT3]

R9 Ser capaz de utilizar las tecnologías de la información y la comunicación (TIC) para buscar, almacenar, procesar y presentar la información de forma segura y eficiente, así como para interactuar y colaborar con otros agentes en el ámbito académico y profesional. [RAG1]

R10 Ser capaz de tomar decisiones de forma autónoma, responsable y razonada. [RAG2]

R11 Ser capaz de generar y desarrollar nuevas ideas y soluciones originales e innovadoras para los problemas y retos que se plantean en su ámbito de estudio y en su entorno profesional, demostrando iniciativa, flexibilidad y espíritu crítico. [RAG3]

R12 Demostrar la capacidad de emplear la indagación como fuente de aprendizaje. [RAG5]

R13 Ser capaz de integrarse y gestionar una empresa, organización, o área funcional. Entendiendo su posicionamiento competitivo e institucional en el mercado y en el entorno, e identificando sus fortalezas y debilidades, así como las amenazas y oportunidades que se le presentan, para mejorar su rendimiento y su sostenibilidad. [RAE6]

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			
	1	2	3	4
RAB5. Demonstrate a high degree of autonomy in learning.			x	
RAG5. Demonstrate the ability to use inquiry as a source of learning.				x

GENERAL	Weighting			
	1	2	3	4
RAB2. Apply their knowledge correctly to their work or vocation in a professional manner and be able to develop and defend arguments and solve problems within their field of study.				x
RAB3. Be able to gather and interpret relevant data (usually within their field of study) to make judgments that include reflections on relevant social, scientific, or ethical issues.				x
RAB4. Be able to convey information, ideas, problems, and solutions to both specialized and non-specialized audiences in both Spanish and English.				x
RAE6. Be able to integrate and manage a company, organization, or functional area, understanding its competitive and institutional positioning in the market and environment, and identifying its strengths and weaknesses, as well as the threats and opportunities it faces, to improve its performance and sustainability.			x	
RAG1. Be able to use Information and Communication Technologies (ICT) to search, store, process, and present information securely and efficiently, as well as to interact and collaborate with other stakeholders in academic and professional settings.				x
RAG2. Be able to make decisions autonomously, responsibly, and based on reason.				x

RAG3.	Be able to generate and develop new ideas and original, innovative solutions for the problems and challenges that arise in their field of study and professional environment, demonstrating initiative, flexibility, and critical thinking.				x
RAT1.	Develop theoretical-practical responses based on the sincere pursuit of complete truth and the integration of all dimensions of the human being in the face of life's big questions.		x		
RAT2.	Apply the principles derived from the concept of integral ecology in their proposals or actions, regardless of the scope, area of knowledge, or contexts in which they are proposed.	x			
RAT3.	Respect and implement the ethical principles and action proposals derived from the Sustainable Development Goals, transferring them to all academic and professional activities.	x			

SPECIFIC		Weighting			
		1	2	3	4
RAB1.	Demonstrate possession and understanding of knowledge in a field of study that builds upon general secondary education, typically reaching a level supported by advanced textbooks and including aspects that involve knowledge from the forefront of the field.			x	

Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R1	20,00%	Objective Tests
R2, R4, R5, R9, R10, R11, R12, R13	25,00%	Completion of Theoretical-Practical Activities
R13	5,00%	Class Attendance and Participation
R1, R2, R10	50,00%	Final Exam
	5,00%	Participation in Synchronous Communication Activities
	25,00%	Deliverable Activities
	10,00%	Periodic Evaluations Through Online Questionnaires
	10,00%	Participation in Discussion Forums
	50,00%	Final evaluation with essay questions and practical scenarios (In-person activity)

Observations

Requirements to Pass the Course In order to pass the course, it is an essential requirement to obtain at least 5 out of 10 points in the final on-site exam in any of the official sittings: first call, second call, early call, or single evaluation. If the final exam is failed, the overall weighted course grade cannot exceed 4.9 out of 10 points.
Continuous Assessment in Other Sittings In the second call, single evaluation, and early call, the objective tests, theoretical-practical activities, and class participation will be assessed through an additional on-site practical exam on data analysis using a computer, in addition to the final on-site exam.
Single Evaluation According to the General Regulations for the Assessment and Grading of Official and Own Degrees of UCV, the single evaluation system is linked to the impossibility of students enrolled in a face-to-face program to attend regular sessions. It is, therefore, an extraordinary and exceptional evaluation system available to students who, for justified and

accredited reasons, cannot undergo the continuous assessment system, provided they formally request it from the course instructor, who will decide explicitly on the admission of the student's request and communicate acceptance or rejection.
The evidence to be submitted and/or the test(s) to be taken in the single evaluation will consist of the same theoretical exam as the rest of the students, as well as an on-site practical exam involving data analysis using a computer. The final grade will be calculated using the following percentages: 50% theoretical exam and 50% practical exam. Obtaining at least 5 out of 10 points in the theoretical exam is an essential requirement. This criterion will apply to both the first and second call.
AttendanceStudents who do not reach at least 80% attendance at face-to-face sessions will not be eligible for continuous assessment. In such cases, in addition to the final on-site exam, they must take an on-site practical exam involving data analysis using a computer. The final grade in this scenario will be calculated as follows: 50% practical exam and 50% theoretical exam (final on-site exam). If the theoretical exam is failed, the overall weighted course grade cannot exceed 4.9 out of 10 points.
Use of Artificial Intelligence During the course, the professor will devote a specific session to defining and discussing best practices in the use of Artificial Intelligence (AI) tools applied to data analysis. Students who violate these best practices, whether in the development of continuous assessment tests or in the final practical exam, will receive a grade of 0 (zero points) in the corresponding test or project.
Criteria for Awarding "Matrícula de Honor" (Highest Distinction) According to the General Regulations for the Assessment and Grading of Official and Own Degrees of UCV, the distinction of *Matrícula de Honor* may be awarded to students who have obtained a grade equal to or higher than 9.0. The number of these distinctions may not exceed five percent of the students enrolled in a group during the corresponding academic year, unless the number of students enrolled is fewer than 20, in which case only one *Matrícula de Honor* may be awarded.

MENTION OF DISTINCTION:

The mention of "Honors" may be awarded to students who have obtained a grade equal to or greater than 9.0. Their number may not exceed five percent of the students enrolled in a group in the corresponding academic year, unless the number of students enrolled is lower.

Learning activities

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

M1 Lecture of contents by the teacher, analysis of competencies, explanation, and demonstration of abilities, skills, and knowledge in the classroom.

M3	Supervised group work sessions led by the teacher. Study of economic-business cases, both real and fictitious. Meaningful construction of knowledge through student interaction and activity. Critical analysis of values and social commitment.
M4	Supervised monographic sessions with shared participation.
M5	Application of interdisciplinary knowledge.
M6	Personalized and small-group attention. Instruction and/or guidance period conducted by a tutor with the aim of reviewing and discussing materials and topics presented in classes, seminars, readings, completion of assignments, etc.
M7	Set of oral and/or written tests used in the initial, formative, or summative assessment of the student.
M9	Group preparation of readings, essays, problem-solving, seminars, assignments, reports, etc., to present or submit in theoretical classes, practical classes, and/or small-group tutorials.
M10	Student study: individual preparation of readings, essays, problem-solving, seminars, assignments, reports, etc., to present or submit in theoretical classes, practical classes, and/or small-group tutorials.
M11	Presentation of content by the teacher, analysis of competencies, explanation, and demonstration of skills, abilities, and knowledge in the virtual classroom.
M12	Group work sessions via moderated chat led by the teacher. Study of economic-business cases, both real and fictitious, to construct knowledge through student interaction and activity. Critical analysis of values and social commitment.
M13	Monographic sessions throughout the course, focused on current aspects and applications of the subject.
M14	Problem-solving, comments, reports, to be submitted at deadlines throughout the course.
M15	Individual attention for monitoring and guidance of the learning process, conducted by a tutor with the objective of reviewing and discussing materials, topics, seminars, readings, completion of assignments, etc.
M16	Participation and contributions to discussion forums related to the subject, moderated by the course instructor.

M17 Set of tests, written or oral, used in the initial, formative, or summative assessment of the student.

M19 Group preparation of readings, essays, problem-solving, seminars, assignments, reports, etc., for dissemination or submission.

M20 Student study: individual preparation of readings, essays, problem-solving, seminars, assignments, reports, etc., for discussion or submission in electronic format.

IN-CLASS LEARNING

IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
On-campus Class M1	R1	22,50	0,90
Practical Class M3, M5	R2, R4, R5, R9, R10, R12	15,00	0,60
Seminar M4	R4	4,50	0,18
Group Project Presentation M4, M9	R4	6,00	0,24
Tutoring M6	R9, R10, R12, R13	6,00	0,24
Evaluation M7	R1, R2, R5, R6, R9, R10, R11, R12	6,00	0,24
TOTAL		**60,00**	**2,40**

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
Group Work M3	R2, R4, R6, R8, R9, R10, R11, R12, R13	30,00	1,20
Individual Work M10	R1	60,00	2,40
TOTAL		**90,00**	**3,60**

ON-LINE LEARNING

SYNCHRONOUS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Synchronous Virtual Session M11, M14	R1, R2, R4, R6	4,00	0,16
Synchronous Virtual Practical Session M12, M13, M14	R2, R4, R5, R9, R10, R12	4,00	0,16
Synchronous Virtual Seminar and Videoconference M11, M12	R1, R2, R4, R6	4,00	0,16
In-person Assessment M17	R1, R2, R5, R6, R9, R10, R11, R12	3,00	0,12
Group Work M12, M19	R2, R4, R6, R8, R9, R10, R11, R12, R13	10,00	0,40
Individual Work M14, M20	R5, R9, R10	60,00	2,40
TOTAL		**85,00**	**3,40**

ASYNCHRONOUS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Individual Tutoring M17	R2, R3, R4, R5, R9, R10, R11, R12	50,00	2,00
Discussion Forums M15	R2, R3, R9, R12	5,00	0,20
Continuous Assessment Activities M16	R3, R4, R9, R12	10,00	0,40
TOTAL		**65,00**	**2,60**

Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
Unidimensional descriptive statistics:	Study of a single variable describing its main characteristics. Includes measures of central tendency, dispersion, and distribution graphs.
Bidimensional descriptive statistics	Simultaneous study of two variables to analyze their relationship. Includes contingency tables, scatterplots, and measures of association.
Basic concepts of probability	Study of uncertainty by assigning numerical values to the occurrence of events. Includes notions of random experiment, sample space, and events.
Conditional probability	Study of the probability of an event occurring given that another has already occurred. Includes Bayes' Theorem to update probabilities based on new information.
Probability distributions	Study of how probability is distributed among the possible values of a random variable. Includes discrete and continuous distributions such as binomial or normal.

Temporary organization of learning:

Block of content	Number of sessions	Hours
Unidimensional descriptive statistics:	7,00	14,00
Bidimensional descriptive statistics	8,00	16,00
Basic concepts of probability	2,00	4,00
Conditional probability	3,00	6,00
Probability distributions	10,00	20,00

References

BASIC:·Newbold, Paul, Carlson, William L. & Thorne, Betty (2013) Statistics for Business and Economics. Pearson Prentice Hall .8th global edition.
·Haslwanter, Thomas (2016) An Introduction to Statistics with Python. Springer.·Thomas , Dariin (2022). Introductory Statistics Using Python. Sujisola.**COMPLEMENTARY:**·Salsburg, David. (2002) The Lady Tasting Tea: How Statistics Revolutionized Science in the Twentieth Century