

Bachelor Degree in Business Administration and Management and Business Transformation

Course: Fundamentals of statistics

Materia: Statistics

Credits: 6 ECTS

Program: Bachelor

Modality: On-Site

Year: First

Semester: Second

Academic Year: 2026–2027

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2. Presentation

2.1 Description

The subject of Statistics I, which is taught in the first four months of the second year of the Degree in Administration, is the first subject of the subject of statistics.

This subject aims to train future managers and directors so that they can contribute through a specialized management practice to the economic and social development of companies, understanding that statistics is a fundamental issue for the analysis of numerical data.

The basic concepts of descriptive statistics and probability will be discussed, which will form the basis, both for the study of inferential or inductive statistics, necessary to undertake Statistics II, and for other subjects such as financial mathematics, Microeconomics, Macroeconomics or Business Management. This subject will provide students with the basic skills necessary to understand the subjects in which random phenomena play an important role.

The topic is divided into two fundamental parts: descriptive analysis and probability. Students will learn descriptive analysis of variables and statistical data, both one-dimensional and multidimensional. Explain regression techniques and explore topics of special interest in the field of economics. The aim of studying probability theory is to provide the student with tools to work in an environment of uncertainty. The student will acquire knowledge about probability theory and models, both one-dimensional and multidimensional.

2.2 Relevant profesional applications

The student will understand that Statistics does not represent a topic in itself, but should be understood as a tool to be used later in other fields (quality control, market studies, etc.), a tool with which you can analyze different cases and make appropriate professional decisions.

3. Learning outcomes of the degree

- RAT6 - The graduate will be able to understand the different data analysis techniques used to assess the feasibility of a business project.
- RAT9 - The student will be able to provide clear and precise explanations of any knowledge/information, both orally and in writing, in Catalan, Spanish and a third language, particularly English.
- RAT10 - The student will be able to apply digital technologies (at the right time) in his/her field of expertise.
- RAT12 - The graduate will be able to develop both traditional and digital marketing and promotional projects in a business environment.
- RAT13 - The graduate will be able to analyze the economic operations of companies, which have been carried out in the financial markets.
- RAT14 - The graduate will be able to apply in an effective way the principles of quality management and continuous improvement of organizations by means of a simulation of the implementation of a quality system in a company.
- RAT16 - The graduate will be able to understand the economic-financial information of business entities and institutions in relation to their environment.
- RAT18 - The student will be able to provide innovative, creative and entrepreneurial solutions in professional situations.
- RAT19 - The student will be able to evaluate the sustainability and social impact of the proposals presented, with ethical, environmental and professional responsibility.
- RAT20 - The student will be able to apply the gender perspective in the professional tasks
- RAT21 - The graduate will be able to verify the economic-financial information of business organizations and institutions with regard to their environment, by analyzing the companies' profit and loss accounts.
- RAT24 - After completing the degree, the student will be able to design projects for IT services and systems in all business fields.

4. Learning outcomes of the subjects

- RAM1 - The student will be able to clearly describe the fundamental concepts related to descriptive, mathematical and inferential statistics.
- RAM2 - The student will be able to correctly solve exercises and problems in which statistical methods, techniques and procedures are applied.
- RAM5 - The student will be able to correctly identify a problem, its relevant data and possible causes.
- RAM7 - The student will be able to clearly restructure the available information according to the objectives.

5. Contents

This subject aims to train future managers and directors so that they can contribute through a specialized management practice to the economic and social development of companies, understanding that statistics is a fundamental topic for the analysis of numerical data that helps in the decision-making of companies in search of transformation and expansion. The subject will deal with topics such as:

- 1. Descriptive statistics.**
 - .1.1.Introduction. A bit of history.
 - .1.2.Definitions.
 - .1.3.Database creation: sampling for data collection
 - .1.4.Variables and their classification
 - .1.5.Take note of results: generation of databases.
 - .1.6.Graphical Representations
- 2. Indicators**
 - .2.1.Core Trend Indicators
 - .2.2.Dispersion indicators
 - .2.3.Position Indicators
 - .2.4.Boxplots
- 3. Probability: Generic Discrete Random Variables**
 - .3.1.Definitions and Axioms
 - .3.2.Laplace's rule
 - .3.3.Conditional Probability: Tree Diagram and Bayes' Theorem
 - .3.4.Properties of the probability density function
 - .3.5.Probability or density function,
 - .3.6.Distribution Function.
- 4. Probability. Conditioned: Bayes**
- 5. Probability. Known Discrete Random Variable Distributions**
 - .5.1.Uniform Distribution
 - .5.2.Bernoulli Distribution
 - .5.3.Binomial Distribution
 - .5.4.Poisson distribution
 - .5.5.Special adjustments. Convergence property between Binomial and Poisson
- 6. Probability. Continuous Distributions**
 - .6.1.Known distributions: Uniform.
 - .6.2.Known distribution: Exponential.
 - .6.3.Known distribution: Other.
 - .6.4.Known distribution: Normal distribution (t-student and F-Snedecor)
 - .6.5.Moivre-Laplace theorem
- 7. Introduction to Inferential Calculus.** Confidence Intervals and Hypothesis Testing

Application through examples and exercises of Corporate Social Responsibility to ensure a better sustainable community and continuity in awareness of its importance.

6. Metodology

Learning outcomes developed	Teaching methodology	Training activities
Knowledge	Master class	Teacher's presentations

	Instructional sessions	Student's presentations
	Tutoring	Meetings for the resolution of doubts
	Learning based on readings	Reading and analysis of documents
Skill	Learning based on projects	Problem solving
	Learning based on audio-visual	Audiovisual analysis
	Case-based learning	Search and processing of information. Problem solving
Competence	Project-based work	Reporting Submissions of reports or papers

7. Evaluation

Evaluation system	Weight
Continuous evaluation: exercises, problems, reporting, papers, case studies	40 %
Mid-term exam	20 %
Final exam	40 %

The regulations include the obligation of 75% attendance.

- Absences are divided into two categories: justified and unexcused. Excused absences are those that can be demonstrated with a proof. All other absences are considered unjustified absences.
- The supporting documents must be delivered within a maximum period of 7 days to the teaching staff and clearly include the student's personal data as well as the date and time in which the student did not attend to a class.

Continuous assessment

The final grade for the subject is calculated based on the weighting of three evaluation blocks, divided into evaluable activities:

A. Midterm exam: 20%

B. Exercises, problems, preparation of reports, assignments, presentations: 40%

1. Four evaluable activities: 5% each

2. A group assignment or report: 10%

3. A group presentation: 10%

C. Final exam: 40%

These three blocks will only be weighted if the final exam grade is equal to or greater than 4.0. If the final exam grade is less than 4.0, the subject cannot be passed.

In the event that the subject is failed and, in turn, the final exam grade is less than 5.0, the student can recover the final exam with an additional test. If the weighted grade for the activities in section B is less than 5, this is also recoverable. With the result obtained, the final grade for the subject will be calculated according to the previous criteria.

Students who do not attend evaluative activities with a weight greater than 50% will receive an overall course grade of "Not presented."

Single Evaluation

The single evaluation consists of a single exam that is equivalent to 100% of the course grade. The exam, and therefore the subject, is passed with a grade of 5 out of 10 in this final test. In case of obtaining a grade lower than 5.0, the student has the right to a make-up exam.

To benefit from the single evaluation, it is necessary to send a written request to the coordination during the first 15 business days of the course.

The regulations establish a mandatory attendance requirement of 75%.

Regular attendance at in-person teaching activities is a fundamental academic requirement for the proper acquisition of the course competencies and learning outcomes. Accordingly, students must attend at least **75% of all scheduled sessions**.

Failure to meet this minimum attendance requirement will result in the loss of the right to sit the final examination for the course. Consequently, the student will receive a failing grade, with no possibility of accessing reassessment procedures or second-chance examinations, in accordance with the University's current academic regulations.

1. Absences are divided into two categories: **excused** and **unexcused**. Excused absences are those that can be supported by appropriate documentation. All other absences will be considered unexcused.
2. Supporting documentation for excused absences must be submitted to the teaching staff within a maximum of **7 days** and must clearly include the student's personal details, as well as the date and time period during which attendance in class was prevented.

8. Bibliography

8.1 Basic Bibliography

- Anderson D., Sweeney D., Williams T., Estadística para administración y economía – 10ª edición, Editorial Cengage Learning (2021). ISBN 10: 9686034102 / ISBN 13: 9789686034103

8.2 Complementary Bibliography

- Casas J.M., Cortiñas P., Zamora, A.I. Estadística y economía empresarial. Editorial Ramón Areces (2011). ISBN: 978-84-9961-005-4.
- Hogg R., McKean J., Allen T. Late, C., Introduction to Mathematical Statistics, Global Edition, 8th Edition, Editorial: Pearson (2021). ISBN-10: 0134173058 / ISBN-13: 978-0134173054.
- Levine, D., Stephane D., Szabat, K.A. Statistics for Managers using Microsoft Excel - 8th Edition. Editorial: Preston (2018). ISBN-10: 0134173058 / ISBN-13: 978-0134173054.