COURSE DATA

DATA SUBJECT

Code: 36107
Name: Statistics I
Cycle: OCU Studies / Undergraduate Studies
ECTS Credits: 6
Academic year: 2026-27

STUDY (S)

Degree	Center	Acad. year	Period
1316 - Degree in Economics	Facultat d'Economia	1	Second quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1316 - Degree in Economics	Statistics I	BASIC

COORDINATION

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SUMMARY

Statistics I is a basic training subject that belongs to the area of Quantitative Methods for Business and Economics. It is taught in the second semester of the first year of the Degree in Economics and it is a 6 ECT credit subject.

One of the main objectives of the Degree in Economics is to academically train future professionals, who will be able to contribute to the economic and social development. Therefore, Statistics I is an essential subject for numerical data analysis used in economic and business decision making.

The purpose of the subject is to introduce the basic concepts of descriptive statistics and probability, which will be the immediate base for the study of inferential or inductive statistics, contents that will be seen in the subject of *Statistics II*. But it is also the base for Econometrics subjects, as well as the elective subject of *Data Analysis* (in the itinerary of *Economía Industrial y de la Empresa*) and other subjects of quantitative profile that the student can enroll in.

The subject is divided in two main parts, descriptive statistics and probability. The former includes descriptive analysis of variables and statistics datasets, either unidimensional or multidimensional ones. Regression techniques are explained and some topics of special interest in economics are developed, such as inequality measures, economic indicators and time series. The latter includes topics related to the

general probability theory, with the aim of providing the tools that allow working in an uncertain environment. It is focused on probability theory concepts and probability models, either unidimensional or multidimensional models.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

There are no specified enrollment restrictions with other subjects of the curriculum.

OTHER REQUIREMENTS

No prior knowledge is required.
It is assumed that to succeed in this subject the student has a basic level of mathematics (associated to first and second courses of secondary school in the area of social sciences).

COMPETENCES / LEARNING OUTCOMES

1316 - Degree in Economics

Apply the principles of economic analysis (rational decision) to the diagnosis and resolution of problems.

Be able to collect and analyse information.

Be able to learn autonomously.

Be able to use ICTs.

Have decision-making skills and be able to apply knowledge to practice.

Know and understand the basic quantitative tools for economic analysis, diagnosis and prospection, such as mathematics, statistics and econometrics.

Understand and apply the scientific method, which involves formulating hypotheses, deducing verifiable results and contrasting them with empirical and experimental evidence.

DESCRIPTION OF CONTENTS

1. UNIVARIATE DATA ANALYSIS

1. Introduction.
2. Univariate data: measures of central position, dispersion and shape.
3. Measures of concentration.

2. MULTIVARIATE DATA ANALYSIS

1. Multivariate data: joint and marginal frequency distributions.
2. Mean vector and variance-covariance matrix.
3. Relationship between variables.

3. REGRESSION

1. Introduction.
2. Least squares regression.
3. Goodness of fit.

4. TIME SERIES MODELS

1. Introduction.
2. Economic indices.
3. Time series.

5. UNIVARIATE PROBABILITY MODELS

1. Introduction to probability theory.
2. Random variable and probability distribution.
3. Discrete and continuous random variables.
4. Expected value and variance. Properties.

6. SPECIFIC UNIVARIATE PROBABILITY MODELS

1. Discrete models.
2. Continuous models.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	30,00
Classroom practices	30,00
Total hours	**60,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours

Attendance at other activities	0,00
Individual or group project	50,00
Independent study and work	0,00
Preparation of lessons	30,00
Preparation for assessment activities	10,00
Resolution of case studies	0,00
Total hours	**90,00**

TEACHING METHODOLOGY

The course is primarily structured around theoretical and practical sessions. Depending on the type of session (theoretical or practical), one teaching method will be chosen.

The theoretical sessions, lasting two hours, will cover the main content of each of the topics included in the course, including the fundamentals of descriptive statistics and probability theory, introducing the concepts and contextualizing them to the different fields of application in the socioeconomic environment.

The predominant teaching method in the theoretical classes will be the participatory lecture. This methodology allows for organized leadership of large groups of students, offering the advantages of a lecture without limiting student participation and teacher-student interaction. An effort will be made to encourage class participation and discussion, in order to offer students direct involvement in the content. In the practical sessions, which last two hours, the instructor will present students with situations (real or fictitious) that they must solve by applying the theoretical concepts learned. These practical classes will be conducted using different teaching strategies based on the content discussed in the corresponding theoretical session. The following may be used in these sessions:

- *Project-based learning*: At the beginning of the course, one or more activities may be proposed that will cover the topics of Descriptive Statistics, with the aim of helping students acquire the skills listed in this academic guide.
- *Problem solving*: To complement and apply the concepts studied in the theoretical sessions, practical cases will be solved through manual calculations, the creation of graphs/tables, and the writing of short answers.
- *Quizzes and review questions*: To check understanding of the assignments and lessons, quizzes and review questions may be given in some classes.

While project-based learning and problem-solving can be done in a collaborative environment, quizzes and review questions will be based on individual work.

The structure of these activities, as well as the due dates for the associated reports, will be established by each instructor and communicated in a timely manner.

EVALUATION

The assessment of student learning in this subject will be carried out through a dual process: a summary test at the end of the semester, which evaluates the level of achievement of the learning outcomes, especially those focused on the subject's specific competencies with respect to content and application,

and continuous assessment of the student, based on their participation and involvement in the teaching-learning process.

The summary test will consist of theoretical and practical questions, although significant weight will be given to questions that assess whether the student has assimilated the key elements of the program. This test will be worth 70% of the final grade.

Continuous assessment aims to develop students' competencies and encourage daily work and will be based on an evaluation of students' adherence to the subject through class participation and the completion of assignments. Continuous assessment will account for 30% of the final grade.

By their very nature, continuous assessment activities are non-recoverable.

The final grade will be the weighted sum of the summary test and the continuous assessment. If the student fails the summary test (a student passes the summary test if they obtain a score greater than or equal to 3,5 points out of 7 or, alternatively, 5 points out of 10), the final grade cannot exceed a maximum of 4,5.

Students who do not participate in continuous assessment or the practicals may be assessed on the summary test and may obtain a maximum final grade of 7. To pass the course, they must have obtained a minimum of 5 out of 7 points on the summary test (or the equivalent score if the summary test is evaluated out of 10 points).

REFERENCES

Basic

- ESCUDER, R. and MURGUI, J.S. (2011). Estadística Aplicada. Economía y Ciencias Sociales. Tirant lo Blanch. Valencia, (2nd edition).

- ESTEBAN, J. et al. (2013). Estadística Descriptiva y nociones de Probabilidad. Paraninfo. (Revised edition).

- LIND, D.A.; MARCHAL, W.G.; WATHEN, S.A. (2020). Estadística Aplicada a los Negocios y la Economía. Méjico McGraw-Hill.

- MURGUI, J.S. et al. (2002). Ejercicios de Estadística. Economía y Ciencias Sociales. Valencia: Tirant lo Blanch.

- NEWBOLD, P.; CARLSON, W.L.; Thorne, B. (2023): Statistics for business and economics, Pearson Education.

Complementary

- ANDERSON, D.R.; SWEENEY, D.J. and WILLIAMS, T.A. (2008). Estadística para Administración y Economía. México: International Thomson.

- CEACES, Project (Hypermedia Container for Statistics Applied to Economic and Social Sciences). University of Valencia. ON LINE: http://www.uv.es/ceaces

- HILDEBRAND, D.K. and OTT, R.L. (1998). Estadística aplicada a la Administración y a la Economía. Wilmington: Addison-Wesley Iberoamericana.

- MARTÍN-PLIEGO, F.J. (2004). Introducción a la Estadística Económica y Empresarial. Madrid: International Thomson.

- MARTÍN-PLIEGO, F.J. and RUIZ MAYA, L. (2004). Estadística I. Probabilidad. Madrid: International Thomson. (3rd edition).