

## 27403 - Statistics I

### Syllabus Information

**Academic year:** 2024/25

**Subject:** 27403 - Statistics I

**Faculty / School:** 109 - Facultad de Economía y Empresa

**Degree:** 417 - Degree in Economics

**ECTS:** 6.0

**Year:** 1

**Semester:** First semester

**Subject type:** Basic Education

**Module:**

### 1. General information

The first goal of the subject is for the student to know the main sources of information used in economic statistics and to be able to carry out an initial analysis of a set of univariate and bivariate data; as a second goal, that the student has the necessary knowledge of everything related to the elaboration of indicators as comparative measures of the evolution of a magnitude and as a third goal, that they have a basic knowledge of the Calculus of Probabilities as a support tool for decision making.

These approaches and objectives are aligned with the Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda, specifically contributing to the achievement of Goal 4 in general and Objective 4.4 in particular.

### 2. Learning results

To pass this subject, students must demonstrate the following results:

1. Understand and situate the statistical description of a data set in the stages of the statistical investigation of an economic phenomenon.
2. Handle sources of statistical information in the economic-business field.
3. Define, calculate and derive the properties of basic descriptive statistical measures to synthesize the position, dispersion and shape of the frequency distribution of a univariate data set.
4. Analyse the relationship between two statistical variables distinguishing by the type of variable (qualitative/quantitative).
5. Handle the most commonly used index numbers in Economics and interpret the results obtained.
6. Define basic concepts of probability and apply the fundamental theorems to solve simple problems of Probability Calculus.
7. Be able to solve discrete decision problems under uncertainty.
8. Implement by means of a spreadsheet the statistical measures and graphical representations presented throughout the subject.
9. Prepare statistical reports formulating the conclusions drawn from the study.

### 3. Syllabus

#### 1. Statistical methods in the economic-business field

#### 2. Measurement Scales and Sources of Information

Data sources. Data types and variables. Measurement scales.

#### 3. Tabulation and Graphical Representation of Univariate Data

#### 4. Numerical description

Position, dispersion and shape measurements. Other measures.

#### 5. Tabulation and Graphical Representation of Bivariate Data

Joint, marginal and conditional distributions. Graphical representations. Independence.

#### 6. Correlation and simple linear regression

Correlation. Simple linear regression. Goodness of fit. Prediction. Non-linear regression.

#### 7. Index numbers

Simple and complex indexes. Impact. Change of base. Deflation.

#### 8. Calculation of Probabilities

Basic concepts. Events. Random variables.

#### 9. Statistical Decision Analysis

Decisions under risk. Decisions with experimentation.

### 4. Academic activities

- Lectures: 30 hours
- Practical classes: 30 hours
- Personal Study: 85 hours
- Assessment tests. 5 hours 6 ECTS = 150 hours

Lectures will be used to develop the concepts and techniques of each topic, using the explanatory methodology , but encouraging participation and discussion in class with students. Practical classes will be used to show the student how to approach and solve problems both in the classroom and in the computer lab using software.

In order to encourage student participation, some exercises and questionnaires will be proposed in the theoretical and practical classes, which will be collected at the end of the classes.

## 5. Assessment system

The evaluation system is GLOBAL, with two tests: a Computer Test (PI) and a Written Test (PE), accounting for 60% and 40%, respectively, of the overall grade. At least 4 points will be required in each test, and 5 points out of 10 in the final grade.

Students will be able to take the computer test through continuous assessment. To do so, they will have to prepare a series of papers (TR) and take a Intermediate Computer Test (PII). In this modality, the PI grade is obtained by:

$$PI = 0.3*TR+0.7*PII$$

It will be necessary to obtain at least a 4 in the Simplified Computer Test and in each of the assignments.

All students may take the computer test in the official calls, either for not having opted for the continuous assessment, or for having taken it but not passing it, or to improve the grade obtained.

The written test will only be taken on official calls.

### Second call

Students who obtain at least 5 points in any of the two parts in the first call, but do not pass the subject, may only sit for the part not passed.

## 6. Sustainable Development Goals

4 - Quality Education