27309 - Statistics I

1.General information

1.1.Introduction

The 'Statistics I' course is a basic formation course and is worth 6 ECTS. It belongs to the module of Quantitative Methods for Business, along with the Statistics II, Operations Research and ICTs in Business courses.

The main objective is to supply the student with the basic tools to deal with information and its quantification in Business and Economics, providing a decision support tool in these areas.

First of all, data analysis techniques to describe an economic situation will be studied. These techniques will allow the collecting, tabulating and presenting of the main characteristics of the data. Next, the models that describe the relationship between two variables will be presented. In the last part of the course, some probability concepts will be introduced to explain the behaviour of random situations and an introduction to statistical decision theory will also be presented. The concepts and techniques of this last part of the course will be employed later in other courses of the degree (Statistics II, Econometrics,...).

1.2.Recommendations to take this course

There are no previous requirements to take this course. To achieve greater progress, it is recommended to attend and to participate actively in the classes.

In the first session of the course, the contents of the course, the teaching methodology and the assessment criteria are explained in detail. Through the e-learning platform the teachers will inform the students about the readings, practice cases or relevant news to be employed in the activities of the course.

1.3.Context and importance of this course in the degree

Passing this course will enable the student to...

1. Understand and situate the statistical description of a data set within the stages of the statistical study of an

economic phenomenon.
2. Be able to handle statistical information sources in the Business and Economics areas.
3. Define, calculate and deduce the properties of the basic descriptive statistical measures in order to synthesise the location, the dispersion and the shape of the frequency distribution of a univariate data set.
4. Analyse the relationship between two statistical variables depending on the type of the variable (qualitative/quantitative).
5. Be able to handle index numbers employed in the economy and interpret the results that are 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 in an environment of uncertainty.
8. Implement, using a spreadsheet, the statistical measures and the graphical techniques studied in the course.
9. Be able to write statistical reports formulating the conclusions that are derived from the study of a data set.

1.4.Activities and key dates

2.Learning goals

2.1.Learning goals
1. Understand and situate the statistical description of a data set within the stages of the statistical study of an economic phenomenon.
2. Be able to handle statistical information sources in the Business and Economics areas.
3. Define, calculate and deduce the properties of the basic descriptive statistical measures in order to synthesise the location, the dispersion and the shape of the frequency distribution of a univariate data set.
4. Analyse the relationship between two statistical variables depending on the type of the variable (qualitative/quantitative).
5. Be able to handle index numbers employed in the economy and interpret the results that are 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 in an environment of uncertainty.
8. Implement, using a spreadsheet, the statistical measures and the graphical techniques studied in the course.
9. Be able to write statistical reports formulating the conclusions that are derived from the study of a data set.

2.2.Importance of learning goals

3.Aims of the course and competences

3.1.Aims of the course

3.2.Competences

4.Assessment (1st and 2nd call)

4.1.Assessment tasks (description of tasks, marking system and assessment criteria)

Students must show they have attained the learning results foreseen through the following assessment methods.

The assessment is GLOBAL and the proposed assessment activities are of two types:

- *Computer tests* (CT) in which the students should apply the descriptive techniques presented in the first part of the course (Lessons 1 to 6) to a set of real data using a spreadsheet. In these computer tests, the evaluation criteria will take into account the use of the Excel functions related with the statistical analysis of data, the numerical results obtained and their concordance and suitability with the situation analysed in the context of socio-economic data, as well as their interpretation and the conclusions.

- *Written test* (WT) in which the students will have to solve several practice exercises referring to the application of the

statistical techniques presented in the two last blocks of the course (Lessons 7 to 9). In each problem, several questions will be posed, and the following issues will be evaluated: the statement of the problem in statistical terms, the correct use of the statistical notation and terminology, the correct numerical resolution and the interpretation/comparison of the results obtained.

Each test will be scored from 0 to 10 points.

The part of the course evaluated by the computer tests (CT) will account for 60% of the total score and the part evaluated by the written test (WT) will account for the other 40%. In order to pass the course, two conditions will have to be met: (1) obtain a minimum of 4 points in each of the two parts (CT and WT) and (2) obtain a minimum of 5 out of 10 points in the total score. The total score will be obtained as:

TOTAL SCORE = 0.6*CT + 0.4*WT

The part evaluated by computer tests (CT) may be passed in two ways: (1) taking two intermediate computer tests, CT1 (Lessons 1 to 4) and CT2 (Lessons 5 and 6) which will be organized during the period of regular classes, or (2) taking a single global computer test (GCT) which will be organized in the official exam period established by the faculty for each call.

The written test (WT) will take place only in the official exam period established by the faculty for each call.

In order to pass the part evaluated by computer tests using the first option (two intermediate tests), the student should obtain at least 3 points in each of the intermediate computer tests, and the average score of the two tests (CT = 0.5*CT1 + 0.5*CT2) should be greater than or equal to 4 points. Students who have obtained these minimum scores in the intermediate computer tests but would like to improve their score in the part evaluated by the computer test, will be able to take the global computer test in the first call and will maintain the better of the two scores.

Second call

The students who have obtained at least 5 points in one of the two parts in the first call, but who have not passed the course, will be allowed to take only the part they did not pass in the second call. The tests in this call will have the same format as those of the first call .

5.Methodology, learning tasks, syllabus and resources

5.1.Methodological overview

The methodology followed in this course is oriented towards achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as such as lectures, practice sessions, computer practice sessions, and tutorials.

Classroom materials will be available via Moodle. These include a repository of the slides and lecture notes used in class, the course syllabus, as well as other learning resources such as leaning exercises, data files and outlines of the computer practices sessions.

5.2.Learning tasks

The course is worth 6 ECTS implying a workload for the student of 150 hours divided between the classroom and private study hours. This workload is distributed in the following way:

Activities	Hours in the classroom	Private study hours	Total student hours
Lectures (whole group)	30	30	60
Computer practice sessions (Two subgroups)	22	43	65
	4	6	10
Practice sessions (Two subgroups)	4	6	10
	2		2
Additional practice sessions (P6) (Two subgroups)	3		3
Intermediate tests (Four subgroups)			
Written exam			
TOTAL	65	85	150

Lectures: The professors will present the main contents of the course and try to motivate participation and discussion in the classroom. Slides will be employed in these sessions to help the students to understand the topics. It is recommended to attend the lectures and make notes to complement and clarify the slides.

Practice sessions : In these sessions, the students will learn how to manage and solve practical problems. Before each practical session, the students will have at their disposal the set of problems that will be solved.

Computer practice sessions: During the semester, the students will do several computer practice sessions. In these sessions, they will solve some problems applying the methods and techniques studied in class by using a spreadsheet. Each practice session will consist of two parts. In the first one, the students will be guided to learn the main theoretical concepts; in the second, these concepts will be employed to solve real problems.

5.3.Syllabus

Lesson 1: Statistical Methods in Business and Economics

Lesson 2: Scales of Measurement and Information Sources

Lesson 3: Describing Univariate Data: Frequency Tables and Distributions, and Graphic Presentation

Lesson 4: Describing Univariate Data: Numerical Measures

Lesson 5: Frequency Tables and Distributions and Graphic Presentation of Bivariate Data

Lesson 6: Correlation and Simple Linear Regression

Lesson 7: Index Numbers

Lesson 8: Probability Concepts

Lesson 9: Statistical Decision Theory

5.4.Course planning and calendar

For further details concerning the timetable, classroom and further information regarding this course please refer to the Facultad website

5.5.Bibliography and recommended resources

[BB: Bibliografía básica / BC: Bibliografía complementaria]

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