Academic Year/course: 2022/23

39807 - Statistics I

Syllabus Information

Academic Year: 2022/23
Subject: 39807 - Statistics I
Faculty / School: 326 - Escuela Universitaria Politécnica de Teruel
Degree: 634 - Joint Programme in Computer Engineering - Business Administration
ECTS: 6.0
Year: 1
Semester: Second semester
Subject Type: Basic Education
Module:

1. General information

1.3. 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.

These approaches and aims are aligned with the Sustainable Development Goals (SDGs) of the 2030 agenda, contributing to some extent to their achievement:

4. Quality Education

4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship

2. Learning goals

2.2. Learning goals

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.

3. Assessment (1st and 2nd call)

3.1. 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:

A computer test (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 the computer test, 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 test (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

For students who do not obtain the minimum of 4 points in each of the two parts, the total score will be obtained as: TOTAL SCORE = Minimum {0.6*CT + 0.4*WT; 4}

Students may take the computer test during the class period by means of continuous assessment. In this case, students will have to prepare a series of compulsory assignments (CA) and take a Simplified Computer Test (SCT). For students who choose this option, the final mark for the CT test will be obtained by means of:

CT = 0,3 * CA + 0,7 * SCT

where CA (global score for the compulsory assignments) and SCT will be graded on a scale of 0 to 10 points. In addition, it will be necessary to obtain at least a 4 in the Simplified Computer Test and in each of the compulsory assignments. A mark lower than 4 in any of these activities will automatically prevent the continuous assessment option for the computer test part.

All students will be able to take the computer test in the official exam period established by the faculty for each call, either because they have not opted for continuous assessment of this part; or having opted for it, they have not obtained the minimum grade (4); or because they want to improve their score. In the latter case, the better of the two scores will be maintained.

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

A plagiarism detection software will be used to check the originality of the student's assessment tasks. Identification of plagiarism will invalidate the entire task performance (i.e. the task which will be graded with 0 points).

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.

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.

Course assessment will be onsite. In the case of a new pandemic wave assessment will become partly online or fully online. It should be noted that in any online assessment task the student performance may be recorded, following the regulations described in:

https://protecciondatos.unizar.es/sites/protecciondatos.unizar.es/files/users/lopd/gdocencia_reducida.pdf

4. Methodology, learning tasks, syllabus and resources

4.1. 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.

4.2. 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	32	60
Computer practice sessions (Two subgroups if the POD allows it)	18	30	48
Practice sessions (Two subgroups if the POD allows it)	10	24	38
Computer test	2	1	1
Written exam		3	3
Total	60	90	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.

Intermediate test: There will be an intermediate test that will consist of solving problems using a spreadsheet. The specific date of this test will be set according to the academic calendar and the schedule established by the Faculty. The students will be informed on the course website.

Final test: According to the calendar established by the center, in the exam period, the student will take a global test that will consist of a written test where the competences and skills acquired with a weight of 40% and a computer test that will consist of solving problems with a spreadsheet, which will have a weight of 60%. This computer test will not be necessary for students who have obtained a grade of not less than 4 in the intermediate test.

All lectures and seminars will be imparted on site. In the case of a new health emergency caused by the current pandemic all teaching will be moved online

4.3. 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

4.4. Course planning and calendar

For further details concerning the timetable, classroom and further information regarding this course please refer to the course website (moodle).