Universidad Zaragoza

Academic Year/course: 2023/24

29005 - Applied statistics

Syllabus Information

Academic year: 2023/24
Subject: 29005 - Applied statistics
Faculty / School: 228 - Facultad de Empresa y Gestión Pública
Degree: 429 - Degree in Public Management and Administration
ECTS: 6.0
Year: 1
Semester: Second semester
Subject type: Basic Education
Module:

1. General information

This subject aims to (i) know the basic concepts, as well as the most important methods and techniques of Descriptive Statistics and the Calculus of Probabilities, oriented to the study of socioeconomic variables and (ii) acquire a global idea of the possibilities of application of Statistics to Public Administrations.

All the training provided by this subject (theoretical and practical) contributes transversally to AGENDA 2030 and SDGs since its training enables the student to contribute to the development and management of the 245 indicators of the SDGs proposed by UNEP.

As this is a first-year subject, the previous knowledge will be that taught in the 2nd Baccalaureate of Social Sciences or in the Higher Level Administrative Training Cycle.

2. Learning results

1. To know the basic elements of a statistical study, as well as the different ways of tabulating and representing graphically the information, whether a single characteristic is studied (one-dimensional distributions) or two (two-dimensional distributions).

2. Master the calculation of the main statistical measures of a one-dimensional distribution and a two-dimensional distribution.

3. Summarize the information through a descriptive study giving measures of position, measures of dispersion, measures of concentration and a graphical representation.

4. Determine the type of relationship between two variables, in case of two-dimensional distributions.

5. To relate two statistical variables by means of regression techniques and to know how to predict the value of one variable based on the other.

6. Calculate and correctly interpret correlation and linear determination coefficients.

7. Know how to use EXCEL for the graphical and quantitative analysis of the information studied.

8. Distinguish between functional dependence and statistical dependence.

9. Know how to use simple and composite index numbers to analyze the variations of economic series, including the interpretation of CPI variations (participation and impact).

10. Analyze and graphically represent the four components of a time series, as well as know how to de-trend and de-seasonalize a series.

11. Be able to solve basic probability problems.

12. Be skilled in the use of bibliographic resources to resolve doubts or expand their knowledge.

13. To be proficient in the computer-based solution of the statistical problems posed in the course and in the interpretation of the results.

14. To be able to relate the different topics covered in the course.

3. Syllabus

MODULE I. DESCRIPTIVE STATISTICS

Unit 1. Introduction.

Unit 2. Frequency distribution.

Unit 3. Position measurements.

Unit 4. Measures of dispersion.

Unit 5. Measurements of shape and concentration.

Unit 6. Two-dimensional distributions.

Unit 7. Adjustment Methods.

Unit 8. Regression and Correlation.

MODULE II. SPECIAL TECHNIQUES

Unit 9. Index Numbers.

Unit 10. Time Series.

MODULE III. PROBABILITY AND RANDOM VARIABLES

Unit 11. Introduction to Probability.

Unit 12. Conditional probability and independence

Unit 13. Random variables and probability distributions.

Unit 14. Continuous distributions.

4. Academic activities

4.1. FACE-TO-FACE ACADEMIC ACTIVITIES

Master class: 30 hours (theoretical-practical sessions in which the contents of the subject will be explained).

Practical exercises: 30 hours (problem solving and case studies, assignments, face-to-face tutorials and field visits to).

Personal study and preparation of practical assignments: 85 hours.

Assessment tests. 5 hours.

4.2. VIRTUAL ACADEMIC ACTIVITIES

Synchronous and asynchronous activities: 15 hours (theoretical-practical sessions [videoconferences and/or learning pills] at where the contents of the subject will be explained).

Distance learning activities: 15 hours (virtual network work or activities on the Moodle platform or online tutorials).

Personal study and preparation of practical assignments: 115 hours.

Assessment tests. 5 hours.

5. Assessment system

5.1. VIRTUAL MODE

5.1.1. Continuous assessment: a series of theoretical-practical exercises required by him throughout the course (they account for 30% of the grade). The average grade for all practical exercises must be 5 out of 10. This grade will be maintained for the second round if the student chooses to do so.

There will be two intermediate written and individual face-to-face or online tests on theory, problems and practical exercises corresponding to the topics taught up to the date of each test. This part is 70% of the grade. A test is considered passed if it reaches a minimum of 4 out of 10 points.

5.1.2. Global test: students who do not opt for continuous evaluation, who do not pass the subject through continuous evaluation or who wish to improve their grade, will have the right to take the global and on-site test consisting of a single global final exam in June (for the total of the subject). Corresponds to 100% of the qualification.

In the first call each student will be examined either only on the subject corresponding to the second intermediate test (if with the continuous evaluation they have passed the first intermediate test and do not wish to raise that grade), or on the whole subject. In the first call the whole subject is passed or failed, so in the second call the global test will include the whole subject.

5.2. VIRTUAL MODE

The evaluation system for the on-site modality is the same as for the virtual modality. The main difference lies in the fact that the intermediate tests of continuous evaluation will be carried out in the physical classroom, with the presence of the students.