

28511 - Statistics

Syllabus Information

Academic Year: 2022/23

Subject: 28511 - Statistics

Faculty / School: 108 - Facultad de Ciencias Sociales y del Trabajo

Degree: 428 - Degree in Labour Relations and Human Resources

ECTS: 6.0

Year: 2

Semester: First semester

Subject Type: Basic Education

Module:

1. General information

2. Learning goals

3. Assessment (1st and 2nd call)

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 lectures and practice sessions, computer practice sessions and tutorials.

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.

Lectures and practice session: The professors will present the main contents of the course and try to motivate participation and discussion in the classroom. Furthermore, in these sessions, the students will learn how to manage and solve practical problems.

Computer practice sessions: In these sessions, they will solve real data problems applying the methods and techniques studied in class by using a statistical software.

Final test: According to the calendar established by the center, during the exam period, the student will take a global computer test that will consist of solving problems in which the competences and skills acquired will be evaluated.

The approach, methodology and evaluation of this guide is prepared to be the same in any teaching scenario. They will be adjusted to the socio-sanitary conditions of each moment, as well as to the indications given by the competent authorities.

4.3. Syllabus

Topic 1. One-dimensional descriptive statistics.

- Introduction: basic concepts, types of variables, data organization.
- Tabular representation: frequency tables.
- Graphical representation: bar chart, pie chart, histogram, frequency polygon, stem-and-leaf diagram, pictogram, cartogram, etc. Common errors.

- Summary measures: centralization, location, dispersion and shape. Box plots.
- Linear transformations and variable typing.
- Introduction to normal distribution.

Topic 2. Two-dimensional descriptive statistics.

- Relationship between two qualitative variables: joint, marginal and conditional distribution. Graphical representation. Independence.
- Two quantitative variables: joint distribution, scatter plot, covariance, correlation coefficient. Correlation and heterogeneity. Correlation and causality. Regression line. Coefficient of determination. Prediction and goodness of fit.
- A qualitative and a quantitative variable: summary measures and graphical representation.

Topic 3. Probability.

- Probability: random events and probability.
- Random variables: probability distribution and characteristics.
- Normal distribution and standard normal distribution.

Topic 4. Statistical inference

- Sampling.
- Confidence intervals.
- Hypothesis testing.

4.4. Course planning and calendar

The contents to be developed and the practices associated with them will be established on a weekly basis. The intermediate activities to be carried out will be established by mutual agreement. Among them, the exposition and defense of the exercises carried out by the different groups. For further information regarding this course please refer to the course website (moodle).