31205 - Data Analysis I

Syllabus Information

Academic year: 2024/25
Subject: 31205 - Data Analysis I
Faculty / School: 301 - Facultad de Ciencias Sociales y Humanas
Degree: 613 - Degree in Psychology
ECTS: 6.0
Year: 1
Semester: Second semester
Subject type: Basic Education
Module:

1. General information

The purpose of this subject is to teach students the basics of descriptive statistics, as well as the techniques related to the descriptive analysis of data using statistical software. An introduction to the basics of statistical inference will also be taught.

These approaches and goals are aligned with the following Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 (https://www.un.org/sustainabledevelopment/es/), such that the acquisition of the subject learning results provides training and competence to contribute to some extent to their achievement:

- Goal 4: Quality Education.

- Goal 8: Decent Work and Economic Growth

- Goal 9: Industry, Innovation and Infrastructure

2. Learning results

- Identify the scale of measurement of the data.

- Distinguish the statistical treatment of each variable according to its scale of measurement.

- Perform descriptive statistical analysis with statistical software.

- Analyse quantitative data from a sample, in the sense of ordering and organizing them in a meaningful way, and summarize them in indicators and statistics of frequency, central tendency and variability.

- Interpret the results obtained after the application of data analysis techniques.

- Prepare and interpret contingency tables as a tool for the descriptive analysis of the relationship between categorical variables.

- Detect, identify and assess patterns of linear covariation between pairs of variables, understanding the difference between correlation and causation, becoming familiar with the concept of statistical adjustment and learning to use simple linear models for prediction.

3. Syllabus

- Unit 1. Introduction to data analysis

- Unit 2. Frequency distributions

- Unit 3. Position statistics

- Unit 4. Central tendency

- Unit 5. Dispersion statistics

- Unit 6. Shape statistics

- Unit 7. Transformation of scores

- Unit 8. Association, correlation and causation

- Unit 9. Simple and multiple linear regression

- Unit 10. Introduction to statistical inference: notions of probability

4. Academic activities

This subject includes several academic activities mainly oriented to explain and develop the theoretical concepts of the descriptive study of data and the basic principles of statistical inference, to reinforce the contents of the subject, as well as to learn how to use statistical software for data analysis. In general:

- Explanatory classes
- Practical activities with statistical software
- Guided academic activities
- Tutorials
- Assessment

5. Assessment system

The continuous assessment of the subject consists of two parts:

- **Final test** (60% of the final grade): The theoretical and applied contents developed in the subject will be evaluated.

    Multiple choice and/or short answer questions may be included.

- **Weekly deliveries and evaluable activities** (40% of the final grade): The practical contents of the subject will be evaluated (e.g., critical review of research articles, applied questions related to research projects , use of statistical software and result acquisition and interpreting, etc.).

Given the theoretical-practical nature of this subject, the evaluation criteria are shared in the different parts of the evaluation system. These criteria contemplate the adequacy in the use and handling of statistical software, the ability to interpret the results (value of the statistic, tables, graphs, etc.), as well as to identify and critically review information related to the use and application of statistics in Psychology.

Students must achieve at least half of the maximum possible grade in each of the parts in order to add them together. Likewise, students are entitled to a global evaluation on all the contents of the subject. In this global evaluation, students are eligible for the maximum grade (100% of the final grade). This evaluation will take place in the official final call for exams and consists of a written test with multiple choice and/or short answer questions that refer to the theoretical and practical-applied contents of the subject.

6. Sustainable Development Goals

4 - Quality Education
8 - Decent Work and Economic Growth
9 - Industry, Innovation and Infrastructure