Universidad Zaragoza

Academic Year/course: 2022/23

31215 - Data Analysis II

Syllabus Information

Academic Year: 2022/23
Subject: 31215 - Data Analysis II
Faculty / School: 301 - Facultad de Ciencias Sociales y Humanas
Degree: 613 - Degree in Psychology
ECTS: 6.0
Year: 2
Semester: Second semester
Subject Type: Basic Education
Module:

1. General information

1.1. Aims of the course

The main objective of this subject is to introduce the student to the fundamentals of inferential statistics and train them in the performance of statistical analyses with the computer.

These approaches and objectives are aligned with some of the Sustainable Development Goals, SDG, of the 2030 Agenda (https://www.un.org/sustainabledevelopment/es/) and certain specific goals, in such a way that the acquisition of the Learning outcomes of the subject provides training and competence to the student to contribute to a certain extent to their achievement:

Goal 4: Ensure inclusive, equitable and quality education and promote lifelong learning opportunities for all

4.4 By 2030, significantly increase the number of young people and adults who have the necessary skills, including technical and professional skills, to access employment, decent work and entrepreneurship

Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

8.6 By 2030, significantly reduce the proportion of young people who are not employed and not in education or training

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending

1.2. Context and importance of this course in the degree

The subject "Data Analysis II" is one of the four subjects linked to the area of "Methodology of human behavior research" of the curriculum of the Degree in Psychology. This subject is compulsory and consists of 6 credits. It is taught in the second semester of the second year. While the subject "Data Analysis I" focuses on descriptive statistics, the subject "Data Analysis II" focuses on inferential statistics.

1.3. Recommendations to take this course

To follow this subject without problem, it is necessary to have properly assimilated the subjects "Research methods" and "Data analysis I". In this subject we will work with various mathematical equations. However, the aim of this subject is not to memorize these equations, but to understand them. Therefore, the greatest effort required by this subject is not that of memorization, but that of understanding mathematical concepts.

2. Learning goals

2.1. Competences

General competences

CG05 - Demonstrate critical ability to make relevant decisions.

CB1 - That students have demonstrated knowledge in an area of study that starts from the basis of general secondary education, and is usually found at a level that, although supported by advanced textbooks, also includes some aspects that involve knowledge from the forefront of their field of study.

CB3 - That students have the ability to gather and interpret relevant data (usually within their area of study) to make judgments that include reflection on relevant social, scientific or ethical issues.

CB4 - That students can transmit information, ideas, problems and solutions to both a specialized and non-specialized audience.

CB5 - That students have developed those learning skills necessary to undertake further studies with a high degree of autonomy.

Specific competences

CE03 - Apply information collection techniques, obtain relevant data for the evaluation of programs and/or psychological interventions.

CE09 - Manage, analyze and interpret data in the frameworks of disciplinary knowledge typical of the different fields of psychology.

CE10 - Make decisions in a critical way on the choice, application and interpretation of the results derived from the different methods of psychological research.

CE11 - Disseminate the knowledge derived from theoretical reviews and the results of psychological research.

Transversal competences

CT04 - Acquire essential notions of scientific thought.

2.2. Learning goals

The student, to overcome this subject, must demonstrate the following results:

1. Know the two existing procedures by which statistical inferences can be made: the estimation of parameters and the contrast of hypotheses.

2. Given a specific research problem, identify the most appropriate type of statistical analysis to solve it and carry out the statistical analysis with statistical software (SPSS or another).

3. Correctly interpret the statistical results obtained with statistical software (SPSS or another).

2.3. Importance of learning goals

Statistics is a mathematical discipline used in psychology as well as in other social sciences. Thanks to it, psychology is a discipline with a scientific character. Although a psychologist may have no intention of engaging in research, the way psychologists transmit new advances is through statistical language. Therefore, it is necessary for every psychologist to master statistical terminology and know how to proceed with statistics. In addition, a good training in

statistics allows the psychologist to critically evaluate the quality of scientific work. At the end of the course, the student will be able to apply different statistical analyses, which will be very useful for the research that he or she will carry out later in his/her final degree work.

3. Assessment (1st and 2nd call)

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

The evaluation of the course will consist of two parts:

Evaluation of the theoretical part (60% of the final grade)

This evaluation will be focused on evaluating the theoretical knowledge of the subject. It will represent 60% of the final grade.

Evaluation of the practical part (40% of the final grade)

This evaluation will be aimed at evaluating the practical aspects of the subject. It will represent 40% of the final grade. This evaluation will be obtained based on the evaluation of different activities (e.g., assignments, exercises, exams, etc.) carried out throughout the course. Those students who cannot, or do not want to, take this continuous evaluation, will have to take the evaluation of the practical part on the day of the final exam. Similarly, those who have taken the continuous evaluation and obtained a score of less than 5 out of 10 will also have to take the evaluation of the practical part on the day of the final exam.

Final grade

The final grade will be obtained by the weighted average of the different parts of the evaluation, as long as the score of both parts is equal or higher than 5 out of 10. Otherwise, the final grade will be the score of the part with the lower score. Consequently, it will only be possible to pass this subject if both parts have been passed.

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The main methodology that will be used to teach the theoretical part of the subject will be the master class, in which the fundamentals of inferential statistics and different statistical analyses will be explained. As for the main methodology that will be used in the practical part, it will be through the resolution of problems with computer. Another methodology that will be used will be tutoring, as a means to solve doubts about the contents of the subject that are developed in class.

4.2. Learning tasks

The activities will consist mainly of the performance of statistical analyses with a statistical software (SPSS or other).

4.3. Syllabus

SECTION 1. Introduction to inferential statistics

SECTION 2. Hypothesis contrast and parameter estimation

SECTION 3. Comparison of two means

SECTION 4. Analysis of uni- and multifactorial variance

SECTION 5. Multiple linear regression

4.4. Course planning and calendar

Course planning will be provided to students in advance through Moodle.

The timetable and key dates of the subject can be consulted on the website of the Faculty of

Social and Human Sciences: http://fcsh.unizar.es/.

4.5. Bibliography and recommended resources

To consult the bibliography of the subject, click on the following link:
http://psfunizar10.unizar.es/br13/egAsignaturas.php?id=12501