

25404 - Applied Statistics in Health Sciences

Syllabus Information

Academic year: 2023/24

Subject: 25404 - Applied Statistics in Health Sciences

Faculty / School: 127 - Facultad de Ciencias de la Salud

275 - Escuela Universitaria de Enfermería de Huesca

375 - Escuela Universitaria de Enfermería de Teruel

Degree: 559 - Degree in Nursing

560 - Degree in Nursing

561 - Degree in Nursing

ECTS: 6.0

Year: 1

Semester: Second semester

Subject type: Basic Education

Module:

1. General information

The main objective of this subject is to provide a solid base on the most basic statistical techniques used in the field of Health Sciences, emphasizing their correct use in practical situations. Students will learn to analyse data from studies associated with health problems and to analyse the results obtained in order to draw conclusions and make decisions.

The approaches and goals of the subject are aligned with the Sustainable Development Goals (SDGs) of the United Nations Agenda 2030. Specifically, the learning activities foreseen in this subject will contribute in some measure to the achievement of goals 3 (health and well-being), 4 (quality education), 5 (gender equality) and 10 (reduction of inequalities).

2. Learning results

- Summarize and describe the available information through the necessary graphs, tables and statistics.
- Apply the calculation of probabilities and random variables in simple situations.
- Apply basic statistical inference techniques and interpret the results of statistical analysis according to the proposed objectives
- Perform a data analysis and prepare a report, drawing justified conclusions about different statistical variables and the relationships between them
- Use a statistical package as a tool for solving statistical problems and for making statistical reports.

3. Syllabus

Unit 1. Introduction. The scientific method. Population and sample. Types of variables.

Unit 2. Univariate descriptive statistics. Graphs and frequency tables. Statistics of centralization, dispersion, position and shape. Incidence and prevalence.

Unit 3. Bivariate descriptive statistics. Contingency tables. Independence and homogeneity contrasts. Diagrams of dispersion. Covariance and correlation. Linear regression.

Unit 4. Probability. Basic concepts of probability. Bayes and total probability theorems. Diagnostic tests.

Unit 5. Random variables. Definition and properties. Discrete variables. Continuous variables.

Unit 6. Statistical inference. Sampling. Point estimators. Confidence intervals. Hypothesis testing.

4. Academic activities

Theoretical and practical classes: 30 hours (the theoretical and practical foundations of the subject will be established).

Classes in a computer classroom: 30 hours (resolution of exercises, problems and practical cases, using statistical software).

Group work: 25 hours (completion of a statistical work in group and preparation of a final report).

Personal work: 60 hours

Assessment tests: 5 hours

5. Assessment system

Throughout the term, there will be two midterm tests, whose grades (E1 and E2) will be out of 10 points, and a series of practical cases will be solved with a computer, individually and in small groups, whose grade (P) will be out of 10 points.

Three tests (F1, F2 and U) are graded out of 10 points. The grade obtained in an official call will be obtained as follows:

$$C = 0.35 \cdot \max\{E1, F1\} + 0.35 \cdot \max\{E2, F2\} + 0.3 \cdot \max\{P, U\}$$

Those who have obtained a grade equal to or higher than 5 will pass the subject, provided that any of the quantities $\max\{E1, F1\}$, $\max\{E2, F2\}$ and $\max\{P, U\}$ is at least 4. If the grade C is equal to or higher than 5, but any of the above conditions is not met, the final grade will be 4.9.

In the evaluation of activities, the characteristics of the center where the degree is taught will be taken into account for Huesca and Teruel, always ensuring the acquisition of the competences.