

25643 - Applied Statistics in Health Sciences

Syllabus Information

Academic year: 2023/24

Subject: 25643 - Applied Statistics in Health Sciences

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

Degree: 605 - Degree in Physiotherapy

ECTS: 6.0

Year: 1

Semester: Second semester

Subject type: Basic Education

Module:

1. General information

The general objective of the subject is that students incorporate statistical methodology in their professional work. The student should experience a contact with the basic statistical tools that help to design, execute, analyse and interpret applied research in health sciences and that allow them to be critical with the studies carried out by other researchers.

This is a subject whose evaluable contents, on their own, do not yet provide the student with direct capabilities for the achievement of the objectives of the 2030 Agenda. However, they are essential to base the knowledge later in the rest of the degree, which are more directly related to the Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 (<https://www.un.org/sustainabledevelopment/es/>).

2. Learning results

The student:

- 1.-is able to read critically (analysis, synthesis and critical scientific reasoning) a scientific article in the field of physiotherapy
2. -knows statistical language and understands basic statistical concepts,
3. -is able to perform a descriptive analysis of a set of variables using the appropriate graphical and numerical techniques
4. -knows how to perform basic statistical inference analysis (point estimation or confidence intervals and hypothesis testing)
5. -manages some software for the statistical analysis of a data set,
6. -adequately interprets and summarizes the results of the analysis,
- 7.-can present in writing the results and conclusions of a simple analysis, i.e., is able to generate knowledge from information stored in a database
8. -is able to work as part of a team,
9. -can perform searches of relevant documentation in electronic databases in the field of physiotherapy,
10. has the initiative and capacity for autonomous learning, knows how to adapt the statistical knowledge acquired and knows their limitations.

3. Syllabus

- Chapter 1: Introduction to statistical methods in Health Sciences. Basic terminology.
- Chapter 2: One-dimensional descriptive statistics.
- Chapter 3: Probability, random variables and probability distributions.
- Chapter 4: Inferential statistics: point estimation and confidence intervals and hypothesis testing.
- Chapter 5: Relationship between two variables. Descriptive and inferential aspects.

The planning of the subject may be modified for unforeseen reasons (group performance, changes in the academic calendar, etc.)and, therefore, should not be considered as definitive and closed.

4. Academic activities

Schedule of face-to-face sessions and presentation of papers:

- Theory classes: 2 hours per week throughout the semester.
- Practical classes in small groups: 2 hours per week throughout the semester.
- Delivery of individual case studies: 7 days after their proposal.

- Delivery of the group work: a first part at the end of practice 1 and the rest at the end of the semester.
- Individual global evaluation: at the end of the semester and, if applicable, in the second official evaluation period.

The planned training activities will be carried out in classroom mode in the classrooms and rooms designated by the centre. In justified situations the delivery date of the work may vary.

5. Assessment system

The student must demonstrate that they has achieved the expected learning results by means of the following assessment activities (AE):

(AE1) Summary and commentary of a research article in physiotherapy, selected from the databases of electronic journals accessible to their content via Internet from the library of the University of Zaragoza. This activity has to be done in groups of three people and consists of the selection, summary and enumeration of statistical descriptors, of a physiotherapy research article in which an analysis of data using statistical techniques is addressed.

The grade, from 0 to 10 points, will be the same for all members of the group.

(AE2) Individual resolution of practical cases. This individual activity consists of solving, using the statistical analysis software R-Commander ([R-Commander](#)), a few practical cases. Both the proposal of the exercises and their collection will be done from the MOODLE page of the subject.

The grade, from 0 to 10 points, is the sum total of the individual grades for each resolution

(AE3) Individual written test, consisting of the resolution of multiple-choice questions, each containing 5 possible answers, and some theoretical or theoretical-practical questions. The duration of this part is 1 hour and 30 minutes and the use of notes will not be allowed. Grade from 0 to 10 points.

(AE4) Computer-based practical test, consisting of the resolution of statistical questions on a database, using the computer as a tool for data analysis. The duration of this part is 1 hour and 30 minutes. The use of notes will be allowed. Grade from 0 to 10 points.

The grade for the subject will be obtained using the following formula: $C=0,10*AE1+0,20*AE2+0,35*(AE3+AE4)$.