Academic Year/course: 2023/24

29306 - Biostatistics

Syllabus Information

Academic year: 2023/24
Subject: 29306 - Biostatistics
Faculty / School: 229 - Facultad de Ciencias de la Salud y del Deporte
Degree: 442 - Degree in Odontology
ECTS: 6.0
Year: 1
Semester: Second semester
Subject type: Basic Education
Module:

1. General information

The subject presents an introduction to statistics in health sciences, providing the methodological resources for decision making in the scientific/epidemiological method. Thus, the objective is to introduce the student to the scientific methodology necessary for the collection, processing, analysis and presentation of data in the health sciences environment.

These approaches and objectives are aligned with the following Sustainable Development Goals (SDGs) of the Agenda 2030 Agenda of the United Nations:

Goal 3: Health and Wellness.

Goal 4: Quality Education.

Goal 5: Gender Equality.

Objective 10: reduction of inequalities.

Goal 16: Peace, Justice and Strong Institutions

Goal 17: Alliances to Achieve goals.

2. Learning results

The student, in order to pass this subject, must demonstrate the following results: formulate hypotheses, collect and interpret information for problem solving following the scientific method, understanding the importance and limitations of scientific thinking in dentistry.

The subject expects to contribute to the development of a critical spirit among students to re-evaluate both established knowledge and new information, emphasizing the idea that the findings of all research should always be interpreted in light of their methodological limitations, including those of their design and statistical analysis.

It is hoped, therefore, to contribute to the training of dental professionals who subordinate their actions to the best scientific evidence.

3. Syllabus

The program offered to the student to help them achieve the expected results comprises the following activities... achieve the expected results includes the following activities: activities addressed in master classes, case/problem solving, and computer lab practices:

BLOCK 1: Descriptive Statistics and Probability.
- Sampling and Descriptive Statistics.
- Probability.
- Diagnostic tests.

BLOCK 2: Statistical inference.
- Parametric inference for a sample.
- Parametric inference for two and more samples.
- Nonparametric inference.

BLOCK 3: Association between variables.
- Correlation and linear regression.
- Contingency table analysis.

4. Academic activities

Lectures:

Explanation of the theoretical contents of the subject. As far as possible, brief exercises will be interspersed , as examples, and eventually their resolution by means of statistical software. The relevant audiovisual media will be used as support .

Problem solving and case studies:

Resolution of real practical exercises in the classroom related to the contents taught in the master classes

Computer laboratory practices:

Resolution of real practical exercises in the classroom with the support of the free statistical *software R* and the spreadsheet free *Calc*. Relevant audiovisual media will be used as support.

5. Assessment system

CONTINUOUS EVALUATION:

- **Three tests (80%) of the contents covered in the lectures and case classes:** Individual written test: (1) Descriptive statistics and probability (weighting: 20%); (2) Statistical inference (30%), and (3) Statistical association between two variables (30%).
- **Computer laboratory test (20%):** Computer and/or written test and/or completion of practice notebook to assess problem solving and interpretation skills with *R* statistical *software* and *Calc* spreadsheet.

In order to guarantee the objectivity of each test, the teacher responsible for teaching the master classes and problems will be in charge of designing and evaluating the three tests of point 1. In the same way, the responsible for the computer laboratory will be the one who will evaluate the test of point 2.

FINAL TESTS:

The student will have to take the final exam in June and/or July when the average grade of the continuous evaluation does not reach a grade of 5 out of 10. Those who have not opted for the previous evaluation system or those who wish to improve their grade may also take the final exam. The test will consist of an objective multiple-choice test. A grade of 5 points must be achieved to pass the exam.