

DATA ANALYSIS IN HEALTH SCIENCES

Degree in Occupational Therapy

Academic year 2026-27

Code: 805022

Module: 5

Subject Area: Complementary Training

Type of Subject: Elective

Aimed at: students from 2nd to 4th year

Department: Statistics and Operations Research

Credits: 3 ECTS

Academic term: 1 group per semester

Dates: At the beginning of the corresponding semester, during a 5-week period

1st Semester Schedule: Monday and Wednesday, from 4 pm to 7 pm, since October 5

2nd Semester Schedule: Monday and Wednesday, from 4 pm to 7 pm, since February 9

Place: Computer Room of the Biostatistics Section (Building 5, floor 5, Faculty of Medicine)

Number of students: Maximum of 30 students for each semester group

Observation: To enroll in this subject, it is mandatory to have passed a basic Statistics subject ("Applied Statistics" in the Degree in Occupational Therapy or similar)

TEACHING STAFF

Coordinator: Ferrer Caja, José M.^a
email: jmferrer@ucm.es

Teachers: Zuluaga Arias, M.^a Pilar (1st Semester)
Ferrer Caja, José M.^a (2nd Semester)

SHORT DESCRIPTOR

Given that Statistics offers the necessary tools to analyze the data collected during a scientific investigation, it is essential that the student of a Degree in Health Sciences becomes familiar with the statistical techniques and methods most used in their field and knows how to interpret correctly the results obtained, giving answers to the starting research questions. The subject of "Data Analysis in Health Sciences" will have a fundamentally practical and applied approach, based on the management of statistical software and the critical reading of articles.

COMPETENCIES

Competences corresponding to the associated Module and Subject Area.

General Competences

CG.12, CG.31, CG.32, CG.34, CG.35, CG.36, CG.37.

Specific Competences

CE.M6.1, CE.M6.2, CE.M6.3, CE.M6.4.

OBJECTIVES

Provide students with the necessary statistical training to:

- Be able to propose and design research studies and analyze and interpret the results obtained from a statistical point of view.
- Know how to detect frequent errors in a research paper: sample size is too small, not having verified the hypotheses required by certain statistical techniques that justify their correct application, poor statistical treatment, etc.
- Learn how to use the appropriate statistical software with which to be able to apply the proper statistical techniques in each case.

SYLLABUS

- Review of basic statistical techniques.
- Introduction to advanced statistical techniques.
- "Material and Methods" or "Methodology" in a research paper. Choice of the appropriate statistical techniques for each study.
- Interpretation of statistical results in scientific publications. Critical reading of articles.
- Management of statistical software (SPSS).

TEACHING METHODOLOGY

Training activities based on:

- Theoretical classes
- Resolution of practical cases.
- Debates on statistical aspects related to research in Health Sciences.
- Discussion of research articles.

EVALUATION

During the course there will be a continuous assessment consisting of:

- Active participation in class (30%).
- Carrying out a critical reading of the methodology and statistical analysis of a series of research articles (20%).
- Conducting statistical analyses of a series of real or fictitious databases using SPSS (50%).

BIBLIOGRAPHY

- Argimón, J. M. y Jiménez Villa, J. (2019), "Métodos de investigación clínica y epidemiológica", 5ª ed., Elsevier.
- Cobo, E., González, J. A. y Muñoz, P. (2007), "Bioestadística para no estadísticos: principios para interpretar un artículo científico", Elsevier Masson.
- De la Horra Navarro, J. (2019). *Estadística aplicada*, 3ª ed., reimpresión. Diaz de Santos.
- Martín Andrés, A. y Luna del Castillo, J. (2004), "Bioestadística para las Ciencias de la Salud", 1ª ed. (5a), Norma-Capitel.
- Martínez González, M. A., Sánchez Villegas, A., Toledo Atucha, E. y Faulín Fajardo, F. J. (2025), "Bioestadística amigable", 5ª ed., Elsevier.
- Milton, J. S. (2007), "Estadística para Biología y Ciencias de la Salud", 3ª ed. ampliada, McGraw Hill.
- Woolson, R. (1987), "Statistical methods for the analysis of biomedical data", John Wiley.