UAB
Universitat Autònoma de Barcelona

Scientific Methodology and Biostatistics

Code: 102989
ECTS Credits: 6

2025/2026

Degree	Type	Year
Physiotherapy	FB	1

Contact

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Teachers

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Teaching groups languages

You can view this information at the end of this document.

Prerequisites

Bioestadística: it is advisable to have basic knowledge of mathematics

Objectives and Contextualisation

This subject aims to help the student with the basic training in scientific methodology and bioestadística. Physiotherapy professionals face a set of situations-problem, in which they test their abilities (selection of information, organization of reasoning, distinction between the fundamental and the accessory, statistical interpretation of health problems ...). The purpose is to structure a critical and thoughtful thinking that allows the correct use of scientific knowledge in health sciences and the analysis and resolution of problems in the field of physiotherapy.

The subject raises the basic knowledge and abilities to apply in the accomplishment of the final work of degree.

Competences

- Analyse and synthesise.
- Display a strategic and flexible attitude to learning.
- Display knowledge of the sciences, models, techniques and instruments around which physiotherapy is structured and developed.

- Express ideas fluently, coherently and correctly, both orally and in writing.
- Make changes to methods and processes in the area of knowledge in order to provide innovative responses to society's needs and demands.
- Manage information systems.
- Organise and plan.
- Take account of social, economic and environmental impacts when operating within one's own area of knowledge.
- Take sex- or gender-based inequalities into consideration when operating within one's own area of knowledge.

Learning Outcomes

1. Analyse a situation and identify its points for improvement.
2. Analyse and synthesise.
3. Communicate using language that is not sexist.
4. Consider how gender stereotypes and roles impinge on the exercise of the profession.
5. Display a strategic and flexible attitude to learning.
6. Express ideas fluently, coherently and correctly, both orally and in writing.
7. Identify and use the principles and methods for conducting research in physiotherapy.
8. Identify situations in which a change or improvement is needed.
9. Identify the social, economic and environmental implications of academic and professional activities within one?s own area of knowledge.
10. Manage information systems.
11. Organise and plan.
12. Propose new methods or well-founded alternative solutions.
13. Propose new ways to measure success or failure when implementing innovative proposals or ideas.
14. Propose viable projects and actions to boost social, economic and environmental benefits.
15. Propose ways to evaluate projects and actions for improving sustainability.
16. Statistically process data on physiotherapy treatments.
17. Use reliable sources of information concerning the health sciences and use the information obtained correctly.
18. Use statistical techniques in the workplace in order to gain a deeper understanding of results obtained.
19. Weigh up the risks and opportunities of suggestions for improvement: one's own and those of others.

Content

Scientific Methodology

Theoretical and methodological bases of the research. Scientific approach. Sources of knowledge. Scientific method. Investigation process. Problem and study objectives. Hypotheses and variables. Study subjects: population, sample, sampling and selection criteria. Study designs. Data collection methods. Ethical considerations. Praxis based on Evidence.

Biostatistics:

Introduction to biostatistics. Basics Collection and tabulation of the information. Graphic presentation of the research. Measures of central tendency. Contingency tables and regression line. Binomial and normal distribution. Confidence intervals and hypothesis tests.

Documentary sources. Bibliographical review and sources of information

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Classroom Practices	4	0.16	2, 6, 7, 5, 17
Lab Practices	18	0.72	2, 16, 18, 6, 10, 7, 11, 5, 17
THEORY (TE)	23	0.92	16
Type: Autonomous			
Personal Study	99	3.96	2, 6, 10, 11, 5

Activities are designed and planned so that students can achieve the relevant learning outcomes.

Use of Ai in Scientific methodology: The use of Artificial Intelligence technologies (IA) for this subject is allowed exclusively in support tasks such as proofreading or translations or audiovisual support. The use of IA in support tasks such as bibliographic or information search or any other knowledge generation task is prohibited. The student will have to clearly identify which parts have been generated with this technology, specify the tools used, include a critical reflection on how these have influenced the process and the final result of the activity and reference them (as specified in Bibliography). The non-transparency of the use of IA in this evaluable activity will be considered academic dishonesty and may result in a total penalty in the grade of the activity, or higher

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Assessment

Continous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Bioestadística - Deliveries of written works / practices to deliver	15%	1	0.04	2, 3, 6, 10, 7, 11, 5, 17
Bioestadística - Written evaluation through objective tests of selection of multiple choice items	35%	3	0.12	2, 16, 18, 19, 13, 5, 17
Scientific methodology: Deliveries of written works	15%	1	0.04	1, 16, 18, 3, 10, 9, 8, 19, 15, 12, 13, 14, 4
Scientific methodology: Written evaluation through objective tests of selection of multiple choice items	35%	1	0.04	2, 1, 3, 6, 7, 8, 11, 12, 5, 17

Evaluation criteria:

scientific methodology: individual or group work is compulsory and if one of them is not presented within the established period, it will be evaluated as zero (0).

- The final grade of the subject is the sum of the note obtained in scientific methodology and bioestadística with the weight established in this guide, as long as they have a minimum grade of 4 in each module. The weighting of both biostatistics as a scientific methodology will be carried out whenever the minimum mark of the written work and the grade of the exams are at least 4.

-The partial evaluation activities to which the student is not present will make an average of 0.

Definition of NO EVALUATION: In each part of the subject, both scientific methodology and bioestadística, it will be understood by Nonvalueable (NA) that situation in which the student DOES NOT present to 50% or more of the evaluation activities . Likewise, having a NA in one of the two parts of the subject, will represent a NA in the whole course.

There will be a recovery exam for those students who have not approved the subject through standard modality. In order to participate in this exam the students must have been previously evaluated in a series of activities whose weight equals to a minimum of two thirds of the total grade of the subject

- Single assessment: Students who request it, following the instructions of the University and the Faculty of Medicine, will have the possibility of being evaluated in a single test. The test will be at the end of the academic year and will include all the syllabus taught throughout the course, both theory and practice, and the minimum grade necessary to pass will be 5 points in both moduls. The moment students request this kind of examination, it will be considered that the final grade of the subject will be the one obtained in this test.
Recovery: The same recovery system will beapplied as for the continuous evaluation

Review Tests: All students have the right to review the assessment tests by appointment with the teacher. The review will consist of an individual tutorial where the student will be given the feedback.
The treatment of possible individual cases will be carried out from a teaching committee (made up of the coordinator of the subject, and 2 of the professors of the same, 1 of each department involved) where the student's particular situation will be evaluated and the most appropriate decisions will be taken.

Reconsideration evidence: All students who have not passedthe continuous assessment with a different note from Non-Appraising (NA) have the right to proof of recovery at first call.

Bibliography

Bibliografy

Francisca Ríus Díaz, Julia Wärnberg. Bioestadística 2ªed. Madrid: Ed Paraninfo, 2015

Cobo E, Muñoz P, González JA. Bioestadística para no estadísticos: principios para interpretar un estudio científico. Barcelona: Elsevier Masson, 2007.

Gerrish, K, Lacey A. Investigación en Enfermería. Madrid: McGraw-Hill-Interamericana 2008.

Polit D., Hungler, B. Investigación científica en Cien-cias de la Salud 6a ed. México : McGraw-Hill Interamericana, 2000.

Argimon J.M., Jimenez J. Métodos de investigación clínica y epidemiológica. 4ª ed. Barcelona: Elsevier España,SA, 2013.

Abad E., Monistrol O., Altarribas E ., Paredes A. Lectura crítica de la literatura científica. Enfermería Clínica 2003;13(1): p.32-40.

Rodríguez del Águila M.M, Pérez S., Sordo L., Fernández M. A. Cómo elaborar un protocolo de investigación en salud Med Clin (Barc).2007;129(8): p. 299-302.

Cabezali Sánchez JM, Sánchez Aldeguer J. El cuestionario: bases metodológicas y su utilización en Fisioterapia, para lograr una mayor calidad asistencial. Fisioterapia 1997;19(2):97-103

Fernandez de Sanmamed MJ Adecuación de las normas de publicación en revistas científicas a las investigaciones cualitativas. Atención Primaria Vol.25 Núm. (7): p. 118-122

Fernández de Sanmamed MJ, Calderón C. Investigación Cualitativa en Atención Primaria. En: Martín Zurro A, Cano Pérez JF. Atención Primaria. 5ª ed. Barcelona: Hancourt Internacional;2003.

Links

http://blogs.uab.cat/cuidabloc/

http://www.pedro.org.au/

http://www.scopus.org

http://www.ncbi.nlm.nih.gov/pubmed

http://www.easp.es/exploraevidencia/

http://www.fisterra.com

http://www.msc.es/resp

http://www.doaj.org

Citing AI use: Since some use of AI is allowed, AI must be cited. To know how to cite it see Citar y elaborar Bibliografías. Estilos bibliográficos: COMO CITAR INTELIGENCIA ARTIFICIAL (IA).
Recommended Reading Por qué ChatGPT no puede firmar artículos científicos. Javier Palanca.

Internet resources, legislation and ethical consideration:

- Declaración de Helsinki de la Asociación Médica Mundial

- Informe de Belmont

- Real Decreto 1090/2015, de 4 de diciembre, por el que se regulan los ensayos clínicos con medicamentos, los Comités de Ética de la Investigación con medicamentos y el Registro Español de Estudios Clínicos.

- Ley Orgánica 3/2018, de 5 de diciembre, de Protección de Datos Personales y garantía de los derechos digitales (LOPD-GDD), publicada en 09 de mayo de 2023

- Buenas Prácticas Clínicas

Software

Biostatistics

Software: IBM SPSS

Groups and Languages

Please note that this information is provisional until 30 November 2025. You can check it through this link. To consult the language you will need to enter the CODE of the subject.

Name	Group	Language	Semester	Turn
(PAUL) Classroom practices	101	Catalan/Spanish	second semester	afternoon
(PAUL) Classroom practices	102	Catalan/Spanish	second semester	afternoon
(PLAB) Practical laboratories	101	Catalan/Spanish	second semester	morning-mixed
(PLAB) Practical laboratories	102	Catalan/Spanish	second semester	morning-mixed
(PLAB) Practical laboratories	103	Catalan/Spanish	second semester	morning-mixed
(PLAB) Practical laboratories	104	Catalan/Spanish	second semester	morning-mixed
(TE) Theory	101	Catalan/Spanish	second semester	morning-mixed