
 EUI-SANT PAU Centre adscrit a la UAB	GRAU INFERMERIA - EUI SANT PAU	 HOSPITAL DE LA SANTA CREU I SANT PAU <small>FUNDACIÓ DE GESTIÓ SANITÀRIA UNIVERSITAT AUTÒNOMA DE BARCELONA</small>
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“Scientific Methodology and Biostatistics”	2022/2023
Code: 106104	
Credits ECTS: 6	

Degree	Type	Course	Semester
2500891 Nursing	Basic Training	1	2

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Prerequisites
There are no specific prerequisites.

Contextualization and objectives
<p>This subject is part of the Basic Sciences training module, Statistical subject and is planned to take place in the second semester of the Nursing degree.</p> <p>Research in health sciences involves the search, review and updating of new knowledge to ensure adequate and quality care. To generate knowledge valid for each discipline, it is essential to follow a systematic methodology such as scientific methodology and be conscious of their knowledge of self-discipline.</p> <p>The purpose of this subject is that the student understands the importance of nursing research and acquires the most important concepts in methodology and statistics, highlighting the applicability and cross-cutting nature of the subject's contents.</p>

Learning objectives of the subject

1. Identify the most important points of an investigation.
2. Interpret a qualitative study.
3. Interpret a quantitative study.

Competences and learning outcomes

Competences	Learning outcomes
SPECIFIC	
E06 Basing nursing interventions on scientific evidence and available media.	<p>E06.01 Identify the need to research and use scientific evidence in care.</p> <p>E06.02 Interpret statistical and qualitative data and their possible impact on clinical practice.</p> <p>E06.03 Identify the different methods of research in health sciences.</p> <p>E06.04 Ask research questions based on scientific evidence.</p>
E16 Demonstrate knowledge of health information systems.	<p>E16.01 Describe the characteristics of major information systems.</p> <p>E16.02 Demonstrate skills in bibliographic search.</p>
E.20 Use scientific methodology in nursing interventions.	<p>E20.01 Describe the concepts of science, scientific research and scientific method.</p> <p>E20.02 Identify elements of the investigation process.</p>
GENERALS / BASICS	
G03 Act with ethical responsibility and respect for fundamental rights and duties, diversity and democratic values	<p>G03.02 Critically analyse the principles and values that govern the exercise of the nursing profession.</p> <p>G03.03 Analyse difficulties, prejudices and discrimination, in the short or long term, in relation to certain people or groups.</p> <p>G03.06 Explain the ethical principles involved in nurse research.</p>
B03 That students have the ability to collect and interpret relevant data (usually within their area of study) to make judgments that include a reflection on relevant topics of a social, scientific or ethical nature.	

Contents

MODULE I	Paradigms and types of research
<ul style="list-style-type: none"> - Paradigms in Health Sciences. - Types of research, quantitative and qualitative. - Ethical aspects of research. - Evidence-based nursing. 	
Qualitative research: stages of research	
<ul style="list-style-type: none"> - Characteristics of qualitative methodology. - Question of study and hypothesis in a qualitative project. - Design of a qualitative project: methods, types of study, sample, data collection techniques and data analysis. - Criteria of methodological rigor of a qualitative project. - Critical reading and bibliographic search. 	
Quantitative research: stages of research	
<ul style="list-style-type: none"> - Conceptual Phase: Nature and scope of the problem. Bibliographical search. Strategy and resources. Basic nomenclature in research. Hypothesis and Objectives. - Planning phase: Inclusion and exclusion criteria. Sampling. Sample size. - Empirical phase: Variables. Data collection. - Analysis phase: Analysis and interpretation of the data. - Diffusion phase: Oral presentation. Written presentation. 	
MODULE II	Biostatistics
<ul style="list-style-type: none"> - Definitions, notation. More frequent designs. - Descriptive statistics: <ul style="list-style-type: none"> • Types of variables (categorical, ordinal and quantitative). • Standards (central trend, variability, morphology and position). - Inferential statistics: <ul style="list-style-type: none"> • Estimation of population parameters (Confidence intervals). • Hypothesis Contrast (CH). Type I and II errors, alpha and beta probabilities, power. • Possible conclusions in a CH. • Minimum information to choose the statistical test: <ul style="list-style-type: none"> Types of variables involved / Number of groups evaluated. Design used (related or independent data). Conditions of application of so-called Parametric tests. 	

Methodology

The methodological approach of the subject starts from considering that the protagonist in the teaching-learning process is the student. The student has to be active and autonomous throughout the process and the teacher supports the student by providing the necessary information and resources for learning to occur.

Directed Activity:

The subject is face-to-face with recommended assistance. It uses exhibition, participatory and group methodology developing active listening and exposure.

Supervised Activity:

Different articles and documents are worked. Tutorials can be face-to-face or online.

Activities

Activity	Hours	ECTS	Learning Outcomes
Type: Directed . Theory . Classroom Practices	45	1,8	E06.01; E06.02; E06.03; E06.04 E16.01; E16.02; E20.01; E20.02 B03 G03.02; G03.03; G03.06
Type: Supervised . Tutorial	7,5	0,3	
Type: Autonomous . Bibliographic Inquiries. . Reading articles/reports of interest	90	3,60	

Assessment

Continuous Assessment

A continuous and formative evaluation is carried out throughout the semester by:

- 1 quantitative methodology Module I project in small groups
- 1 qualitative methodology Module I project in small groups
- 1 Module I exam
- 1 Module II exam

Final note: 15% quantitative methodology project + 15% qualitative methodology project + 30% Module I exam + 40% Module II exam.

The grade for the course will be given by the sum of the weights of the 4 tests, provided that a minimum score of 5 is obtained in each one of them.

In the exams (multiple choice questions), wrong answers penalise according to the following formula: $x = \text{successes} - (\text{errors} / k - 1)$, where k is the number of answer choices. Thus, in the most frequent type of exam of 5 possible options (A, B, C, D or E), each item answered incorrectly, subtracts 0.25 items correctly answered; therefore 4 errors subtract a correct answer.

Qualification

- 0 to 4, 9: Fail
- 5, 0 to 6, 9: Pass
- 7, 0 to 8, 9: Satisfactory
- 9, 0 to 10: Excellent (in the event that the student has obtained a grade equal to or greater than 9 may, at the discretion of the teacher, be eligible for an honorary degree).

Recovery Activity

A second chance activity is proposed to students who have been previously assessed by a set of activities, the minimum weight of which is equivalent to 2/3 of the total grade of the subject and who have obtained a final grade lower than 5 and higher than 3.5.

This test will consist of an evaluative activity of the assessment (s) not passed.

The second chance activities will be determined by the teacher.

The teacher may exclude from the second chance process those activities that, due to their nature, considers cannot be recovered.

If the student meets the passing standards on the second chance test corresponding to the failed part, the maximum mark for this will be a 5.

The recovery grade will replace the grade originally obtained, and the final weighted mark will be recalculated.

Once the course has been passed, it cannot be re-evaluated.

Non-evaluable

When the student has not provided sufficient evidence to allow an overall grade of the subject, the report card will show the grade "Non-evaluable".

It is a reason for lack of the sufficient evidence if the student does not participate in any of the activities of the continuous assessment.

Review of the final grade

Once the final grade is published, the student may request a review of the second chance test in the given period for the "review". Review requests are not accepted on dates outside the established limit.

Behaviour Rules

The professor may reduce, between 1 and 2 points the grade of the subject when the student repeatedly does not respect the indications of behaviour in the classroom and / or disturbs the normal functioning of the class.

Assessment Activities

Activity	Weight	Hours	ECTS	Learning Outcomes
MODULE I Group project	30%	3,75	0,15	E06.01; E06.02; E06.03; E06.04 E16.01; E16.02; E20.01; E20.02 B03 G03.02; G03.03; G03.06
Qualitative	20%			
Quantitative	10%			
MODULE I Exam: Objective test.	30%	1	0,05	
Scientific Methodology				
MODULE II Exam: Objective test. Biostatistical	40%	2,75	0,11	

BIBLIOGRAPHY

Foundations of Nursing Research.

Author: Nieswiadomy RM

Edition: Boston MA: Pearson; 2012 6th edition

ISBN: 978-0134167213

Investigació científica en ciències de la salut

Author: Polit D, Hungler B

Edition: Madrid Interamericana McGraw-Hill; 2000 6^a

ISBN: 9789701026908

Introducción a la Investigación en ciencias de la Salud

Author: Stephen Polgar

Publishing: Elsevier 2014

ISBN: 9788490227565

Bioestadística

Author: Norman y Steiner

Edition: Mosby/Doyma Madrid 1996

Introducción a las técnicas cualitativas de investigación en salud

Author: Vázquez ML, da Silva MRF y cols.

Edition: Barcelona, UAB Servei de publicacions 2006