
 <b>EUI-SANT PAU</b> Centre adscrit a la <b>URB</b>	<b>GRAU INFERMERIA - EUI SANT PAU</b>	 <b>HOSPITAL DE LA SANTA CREU I SANT PAU</b> <small>FUNDACIÓ DE GESTIÓ SANITÀRIA UNIVERSITAT AUTÒNOMA DE BARCELONA</small>
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<b>“Scientific and Biostatistical Methodology”</b>	<b>2020/2021</b>
Code: 106104	
Credits ECTS: 6	

Degree	School Plan	Type	Course	Semester
1471 Nursing	Nursing Degree	Basic Training	1	2

<p><b>Contact</b></p> <p><b>Responsible for the Subject:</b>          Gich Saladich, Ignacio José  <a href="mailto:IGichS@santpau.cat">IGichS@santpau.cat</a></p> <p><b>Teachers:</b>          Gich Saladich, Ignacio José  <a href="mailto:IGichS@santpau.cat">IGichS@santpau.cat</a></p> <p>Medina Perucha, Laura  <a href="mailto:Imedina@idiapjgol.info">Imedina@idiapjgol.info</a></p> <p>San José Arribas, C. Alicia  <a href="mailto:asanjose@santpau.cat">asanjose@santpau.cat</a></p>	<p><b>Use of languages:</b></p> <p>Principal working language:          Catalan / Spanish.</p> <p>Some groups entirely in English: No          Some groups entirely in Catalan: Yes          Some groups entirely in Spanish: Yes</p>
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<p><b>Prerequisites</b></p> <p>There are no specific prerequisites.</p>
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<p><b>Contextualization and objectives</b></p> <p>This subject is part of the training module Basic Sciences, Statistical subject and is planned to take place in the second semester of the degree of Nursing.</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 become aware of one's own disciplinary knowledge.</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>
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**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
E06 Basing nursing interventions on scientific evidence and available media.	E06.01 Identify the need to research and use scientific evidence in care.  E06.02 Interpret statistical and qualitative data and their possible impact on clinical practice.  E06.03 Identify the different methods of research in health sciences.  E06.04 Ask research questions based on scientific evidence.
E16 Demonstrate knowledge of health information systems.	E16.01 Describe the characteristics of major information systems.  E16.02 Demonstrate skills in bibliographic search.
E.20 Use scientific methodology in nursing interventions.	E20.01 Describe the concepts of science, scientific research and scientific method.  E20.02 Identify elements of the investigation process.
<b>Basics / Generals</b>	
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.	
G03 Act with ethical responsibility and respect for fundamental rights and duties, diversity and democratic values	G03.02 Critically analyze the principles and values that govern the exercise of the nursing profession.  G03.03 Analyze difficulties, prejudices and discrimination, in the short or long term, in relation to certain people or groups.  G03.06 Explain the ethical principles involved in nurse research.

## Contents

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

## 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
<b>Type: Directed</b> . Theory . Classroom Practices	45	1,8	
<b>Type: Supervised</b> . Tutorial	7,5	0,3	E06.01; E06.02; E06.03; E06.04 E16.01; E16.02; E20.01; E20.02 B03 G03.02; G03.03; G03.06
<b>Type: Autonomous</b> . 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 group work in Module I
- 1 qualitative methodology group work in Module I
- 1 test written in Module I
- 1 test written in Module II.

Final note: 15% quantitative methodology work + 15% qualitative methodology work + 30% written test Module I + 40% written test Module II.

The qualification of the subject will be given by the sum of the weights of the 4 tests provided that a minimum score of 4,5 out of 10 is obtained in the written test of Module I and a 4 out of 10 in the written test of Module II.

In the test type written test (multiple choice questions), the negative answers subtract 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: Basic Pass
- 7, 0 to 8, 9: Remarkable
- 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 recovery activity is proposed to students who:

1. Have participated in a set of activities whose minimum weight is 2/3 parts of the total grade of the subject.
2. And they have obtained a note equal to or greater than 3.5.

This test consists of an evaluative activity, to be determined by the teacher, which will include the suspended content, and will be carried out in the period established for this purpose.

The teacher can exclude from the recovery process those activities that, by their nature, he considers to be not recoverable.

The final qualification of this recovery activity will become an approved (5, 0) of the entire subject.

Once the subject is 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 "Non-evaluable" grade.

If the student does not participate in any of the activities of the continuous assessment, this is a reason for lack of sufficient evidence.

### Review of the final note:

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

### Behaviour Rules

The teacher 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 same.

### Assessment Activities

Activity	Weight	Hours	ECTS	Learning Outcomes
<b>MODULE I</b> Group work	<b>30%</b>	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	15%			
Quantitative	15%			
<b>MODULE I</b> Written assessment: Objective evidence. <b>Scientific Methodology</b>	<b>30%</b>	1	0,05	
<b>MODULE II</b> Written assessment: Objective test. <b>Biostatistical</b>	<b>40%</b>	2,75	0,11	

## **BIBLIOGRAPHY**

### **Foundations of Nursing Research.**

Autor: 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<sup>a</sup>  
ISBN: 9789701026908

### **Introducción a la Investigación en ciencias de la Salud**

Author: Stephen Polgar  
Publishing: Elsevier 2014  
ISSBN: 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