UAB
Universitat Autònoma de Barcelona

2020/2021

Scientific Methodology and Biostatistics

Code: 106104
ECTS Credits: 6

Degree	Type	Year	Semester
2500891 Nursing	FB	1	2

The proposed teaching and assessment methodology that appear in the guide may be subject to changes as a result of the restrictions to face-to-face class attendance imposed by the health authorities.

Contact

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Use of Languages

Principal working language: catalan (cat)

Some groups entirely in English: No

Some groups entirely in Catalan: Yes

Some groups entirely in Spanish: No

Teachers

Albert Navarro

Rosa García Sierra

Josep Maria Manresa Domínguez

Prerequisites

Objectives and Contextualisation

This subject contains the basic training in scientific methodology and biostatistics of the degree. Nurses, whenpracticing their profession, face a set of situations-problems that put their abilities to the test (selection ofinformation, organization of reasoning, distinction between the fundamental and the accessory, statisticalinterpretation of health problems, etc.)

The purpose is to structure a critical and thoughtful thinking that allows the critical reading of research in healthsciences and the analysis of health problems using statistics to promote a practice nurse of excellence.

The subject raises the basic knowledge and skills to apply in the accomplishment of the degree's final project.

Competences

- Base nursing interventions on scientific evidence and the available media.
- Demonstrate knowledge of health information systems.
- Respect diversity in ideas, people and situations.
- Students must be capable of collecting and interpreting relevant data (usually within their area of study) in order to make statements that reflect social, scientific or ethical relevant issues.
- Use scientific methodology in interventions.

Learning Outcomes

1. Analyse the problems, prejudices and discrimination in the short and long term in relation to certain people or groups.
2. Critically analyse the principles and values that regulate the exercising of the nursing profession.
3. Describe the elements necessary to define the scientific evidence in the original article.
4. Describe the ethical principles involved in nursing research.
5. Draw up research questions based on scientific evidence.
6. Identify elements that belong to the research process.
7. Identify the different levels of scientific evidence based clinical practice scenarios.
8. Interpret statistical results of a scientific article and its potential impact on clinical practice.
9. Relate scientific methodology to scientific methods and the solution of problems.
10. Students must be capable of collecting and interpreting relevant data (usually within their area of study) in order to make statements that reflect social, scientific or ethical relevant issues.
11. Use the different computer programs as research support instruments.

Content

Below is a brief description of the subject:

1. Bases of scientific knowledge: Sources and types of human knowledge. The scientific method. the scientific method's characteristics and limitations.
2. Quantitative and qualitative methodologies: Introduction and differences between both.
3. Research process: Relationships between the scientific method, the research process and a scientific article.
4. Research problem and hypothesis formulation.
5. Review and bibliographic search.
6. Study design.
7. Sample and Population.
8. Methods of data collection.
9. Evaluation of scientific articles: internal validity and external validity.
10. Evidence Based Nursing.
11. General concepts of statistics: basic terminology of research and statistics. Principles of the measure
12. Recollection, tabulation and graphic presentation of results. Basic principles of descriptive inferential statistics.
13. Handling of statistical data files.
14. Presentation and interpretation of results in scientific articles

Methodology

The different learning methodologies make up both the theoretical content and the skills corresponding to a reflective-critical thinking in problem solving.
Nursing interventions will be analyzed from original articles in the field of nursing care and the decision making will be established based on the critical reading of them.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
CLASSROOM PRACTICES	8	0.32	1, 3, 4, 5, 6, 10, 9, 11
LABORATORY PRACTICES	18	0.72	5, 10, 11
SEMINARS	12	0.48	1, 3, 5, 6, 7, 8, 10

THEORY	27	1.08	3, 4, 5, 6, 7, 8
Type: Supervised			
TUTORIALS	1	0.04	1, 10
Type: Autonomous			
Self study	76	3.04	1, 5, 10, 9, 11

Assessment

The subject is presented in two evaluation blocks: scientific methodology and biostatistics with different evaluation activities. All written assessment activities use objective tests (items from multiple choice, wide-ranging essay test, restricted-choice essay test) and oral evaluation (structured test - analysis of an original article) are mandatory, in case of not submitting will be grade as Non- Evaluable (NE) and will be quantified as zero (0).

-The qualification of each block of the subject (scientific methodology and biostatistics) is the weighted average of the different assessment activities of each block as long as the grade of each one of these is equal to or greater than 4. In cases where any of the assessment activities is lower than 4, the resultant numerical note will be the weighted average note according to the previous criteria whenever it is inferior to 5, or it will be set to 4.3 provided that the weighted average is greater than 5.

-The final grade of the subject is the weighted average of the two blocks of knowledge (scientific methodology and biostatistics), as long as the mark of each of them is equal or higher than 4.5. In the cases where the resultant mark of one of the blocks of knowledge is less than 4.5, the note resulting numerical will be the weighted average grade whenever it is less than 5, or it will be set to 4.8 whenever the weighted average is greater than 5.

Definition of NOT EVALUABLE (NE): In each block of knowledge, both scientific methodology and biostatistics, it will be understood by Non evaluable (NE) that situation in which the student is NOT present to 50% or more than the evaluation activities. Likewise, having a NE in one of the blocks will be a NE throughout the whole subject.

Tests Review: All students have the right to review the evaluation tests by appointment with the teacher. The revision will consist of an individual tutoring where the student will be given the feedback in relation to his evaluation.

The treatmentof possible individual cases will be carried out through a teaching committee (formed by the coordinator of the subject, and 2 of the professors of the same, 1 of each department involved) where the situation will be evaluated particular of the student and the most appropriate decisions will be taken.

Students who have not passed the subject through continuous assessment may submit to a retake exam as long as the student has been assessed for the two thirds of the total grade of the subject. This retake exam will include the entire block of knowledge failed.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Evaluation by submitting written works	20%	2	0.08	2, 1, 4, 5, 6, 8, 10, 11
Objective written test evaluations (biostatistics)	30%	2	0.08	2, 6, 8, 10, 11
Objective written test evaluations (scientific methods)	30%	2	0.08	3, 5, 6, 7, 8, 10, 9

| Oral evaluation: structured examinations | 20% | 2 | 0.08 | 2, 1, 3, 4, 5, 6, 7, 8, 10, 9, 11 |

Bibliography

Selected references:

1. Josep M. Argimon Pallás, Josep Jiménez Villa. Métodos de investigación clínica y epidemiológica. 5ª ed. Barcelona: Elsevier, España,SA, 2019.
2. Susan K. Grove, Jennifer R. Gray, Nancy Burns. Investigación en enfermería. Desarrollo de la práctica enfermera basada en la evidencia. Madrid. Elsevier. 6a ed. 2016
3. Denise F. Polit, Cheryl Tatano Beck. Essentials of nursing research: Appraising Evidence for Nursing Practice. Philadelphia : Wolters Kluwer/Lippincott/Williams & Wilkins Health. 8th ed. 2014

Referral bibliography:

1. Nancy Burns, Susan K. Grove. Investigación en enfermería. Madrid. Elsevier 5a ed. 2012.
2. Miguel Martín, Olivia Horna, Fúlvio B. Nedel, Albert Navarro. Fundamentos de estadística en ciencias de la salud. Bellaterra: Servei de publicacions UAB, 2010.
3. Erik Cobo, Pilar Muñoz, José Antonio González. Bioestadística para no estadísticos: principios para interpretar un estudio científico P, González JA. Barcelona: Elsevier Masson, 2007.

Internet Sources

1. https://doaj.org/
2. http://www.ncbi.nlm.nih.gov/pubmed
3. http://www.scopus.com/home.url
4. http://www.easp.es/exploraevidencia/
5. http://www.fisterra.com/