Information about the subject

Degree: Bachelor of Science Degree in Nursing

Faculty: Faculty of Medicine and Health Sciences

Code: 1211103 **Name:** Biostatistics and Research Methodology

Credits: 6,00 **ECTS Year:** 1 **Semester:** 2

Module: Common basic training

Subject Matter: Biostatistic **Type:** Basic Formation

Field of knowledge: Health sciences

Department: Biostatistics, Epidemiology, and Public Health

Type of learning: Classroom-based learning

Languages in which it is taught: Spanish

Lecturer/-s:

1211A	David Fernández García **(Responsible Lecturer)**	david.fernandez@ucv.es
	Belen Estefania Proaño Olmos	be.proano@ucv.es
1211B	David Fernández García **(Responsible Lecturer)**	david.fernandez@ucv.es
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1211C	David Fernández García **(Responsible Lecturer)**	david.fernandez@ucv.es
1211E	Jose Maria Campos Perez **(Profesor responsable)**	josemaria.campos@ucv.es

Module organization

Common basic training

Subject Matter	ECTS	Subject	ECTS	Year/semester
Anatomy	6,00	Human and Functional Anatomy	6,00	1/1
Physiology	12,00	Human Physiology	6,00	1/2
		Physiopathology	6,00	2/1
Biochemestry	6,00	Clinical Biochemistry	6,00	1/1
Biostatistic	6,00	Biostatistics and Research Methodology	6,00	1/2
Psychology	6,00	Psychology of Care	6,00	1/1
Pharmacology	6,00	Pharmacology	6,00	2/1
Nutrition	6,00	Nutrition and Dietetics	6,00	2/1
ICT	6,00	ICT	6,00	3/1
English	6,00	English	6,00	1/2
Life support	6,00	Emergency Care and Life Support	6,00	4/1

Recommended knowledge

In order to get the most out of this course, we recommend that students have the following knowledge prior to enrolling:
1. Operation with equations with one or two unknown quantities.
2. Operation with fractions.
3. Simple mathematical calculations.
4. Use of scientific calculator.

Learning outcomes

At the end of the course, the student must be able to prove that he/she has acquired the following learning outcomes:

R1   That students are able to base nursing interventions on scientific evidence and available means.

R2   That the students know the health information systems.

R3   That the students are capable of applying the technologies and systems of information and communication of health care.

Competencies

Depending on the learning outcomes, the competencies to which the subject contributes are (please score from 1 to 4, being 4 the highest score):

BASIC		Weighting			
		1	2	3	4
CB1	Students have demonstrated possession and understanding of knowledge in an area of study that is at the core of general secondary education, and is often at a level that, while supported by advanced textbooks, also includes some aspects that involve knowledge from the cutting edge of their field of study.		x		
CB2	Students are able to apply their knowledge to their work or vocation in a professional way and possess the skills usually demonstrated by developing and defending arguments and solving problems within their area of study.			x	
CB3	Students have the ability to gather and interpret relevant data (usually within their area of study) to make judgments that include reflection on relevant social, scientific or ethical issues.				x
CB4	That students can convey information, ideas, problems and solutions to both specialized and non-specialized audiences.			x	
CB5	Students have developed those learning skills necessary to undertake further study with a high degree of autonomy.				x

GENERAL		Weighting			
		1	2	3	4
CG0	Good Public Speaking.		x		

SPECIFIC		Weighting			
		1	2	3	4
9b	To apply technologies and information systems as well as communication systems to promote the care of the health of patients.		x		

TRANSVERSAL		Weighting			
		1	**2**	**3**	**4**
6	To base interventions in nursing on scientific evidence and on the available means.				**x**
16	To understand the systems of information related to health.	**x**			

Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R3	60,00%	Theoretical written exams
R1, R2, R3	40,00%	Practical tests and works
R1, R2, R3	0,00%	Attendance and active participation

Observations

Observations
- Clarifications on Course Assessment
·The theoretical written tests (60%) consist of the final in-person exam and continuous assessment tasks completed throughout the course.
·The practical tests and assignments (35%) are based on the group research project.
·Attendance and active participation (5%) will also be assessed.

To pass the course, students must obtain at least 50% in the final exam. The exam will consist of two sections:
·A part with 15 multiple-choice questions, each with four possible answers and only one correct option. Wrong answers will be penalized according to the formula $A - (E / (n - 1))$, where A = number of correct answers, E = number of incorrect answers, and n = number of options.
·A second part with 3 problems to solve. The final result and the reasoning process will both be evaluated.

If the student does not reach 50% in the final exam, the published grade will be the unweighted score obtained in the final exam. The research project will involve working on one of the proposed topics related to the field of nursing care, following the phases of the scientific method and the guidelines provided during the semester. Spelling mistakes, grammatical inconsistencies, and the use of "text message language" in assignments, exams, or any other evaluation tools will result in a 10% deduction of the grade assigned to the task.

- Use of Artificial Intelligence
Students may use AI for:
·Clarifying doubts regarding learning activities
·Assisted learning (alternative explanations or self-assessment exercises)

·Searching for additional resources and references for studying
·AI-generated activities proposed by the instructor
The following uses of AI are strictly prohibited:
·Recording or transcribing, partially or fully, any classroom activity to generate summaries or notes using AI
·Generating text for assignments related to the "Research Project"
·Presenting AI-generated work as one's own
·Feeding instructions, assignments, or tests into AI tools to receive automatic answers
Citation and Attribution Criteria
·If AI is used in any activity, students must indicate where it was used, which AI tool was used, and for what purpose (e.g., source consultation, style analysis, knowledge expansion, etc.)

On a Single Evaluation
In this course, it is possible to opt for a single evaluation, which is an exceptional and extraordinary mode of assessment. This option will be granted only when a student, due to a justified and properly accredited reason, cannot meet the minimum attendance requirement. This option must be requested from the professor in charge, who, in coordination with the corresponding Department's administration, will assess its validity and communicate the final decision in writing. The single evaluation is not a single exam, but rather a set of tasks and/or tests through which all established learning outcomes will be assessed, ensuring that the student has dedicated the corresponding ECTS to the course.

- COURSE COMPLETION FOR STUDENTS ENROLLED FOR THE SECOND OR SUBSEQUENT TIME
The assessment criteria for students enrolled for the second or subsequent time will be based on a single exam, consisting of two parts:
·One with objective multiple-choice questions (15 questions)
·One with 4 problems, of which 3 must be solved The first part will represent 30% of the final grade, and the second part 70%. Multiple-choice questions will have 4 possible answers and only one correct option. Wrong answers will be penalized according to the formula $A - (E / (n - 1))$, where A = number of correct answers, E = number of incorrect answers, and n = number of options. The instructor responsible for students in their second or subsequent enrollment will contact them through the virtual campus, where they will be informed of the tutoring days and hours.
MENTION OF DISTINCTION:
In accordance with the regulations governing the assessment and grading of subjects in force at UCV, the distinction of "Matrícula de Honor" (Honours with Distinction) may be awarded to students who have achieved a grade of 9.0 or higher. The number of "Matrículas de Honor" (Honours with Distinction) may not exceed five percent of the students enrolled in the group for the corresponding academic year, unless the number of enrolled students is fewer than 20, in which case a single "Matrícula de Honor" (Honours with Distinction) may be awarded. Exceptionally, these distinctions may be assigned globally across different groups of the same subject. Nevertheless, the total

number of distinctions awarded will be the same as if they were assigned by group, but they may be distributed among all students based on a common criterion, regardless of the group to which they belong.

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Learning activities

The following methodologies will be used so that the students can achieve the learning outcomes of the subject:

M1   Exposition of contents by the teacher, analysis of competencies, explanation and demonstration of abilities, skills and knowledge in the classroom.

M2   Group work sessions supervised by the teacher. Case study, diagnostic analysis, problems, field study, computer room, visits, data search, libraries, network, Internet, etc. Significant construction of knowledge through student interaction and activity.

M3   Supervised monographic sessions with shared participation.

M4   Application of interdisciplinary knowledge.

M5   Activities developed in spaces and with specialized equipment.

M6   Personalized attention and in small groups. Period of instruction and/or orientation carried out by a tutor with the objective of reviewing and discussing the materials and topics presented in the classes, seminars, readings, completion of assignments, etc.

M7   Set of oral and/or written tests used in the initial, formative or summative evaluation of the student.

M8   Student study: Individual preparation of readings, essays, problem solving, seminars, papers, memoirs, etc. To expose or deliver in the theoretical classes, practical classes and/or small group tutorials. Work done on the university platform (www.plataforma.ucv.es).

M9   Group preparation of readings, essays, problem solving, papers, memoirs, etc. To present or deliver in the theoretical classes, practical classes, seminars and/or small group tutorials. Work done on the university platform (www.plataforma.ucv.es).

IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Face-to-face class M1	R1, R2, R3	32,00	1,28
Practice Classes M2	R1, R2, R3	14,00	0,56
Exhibition of group works M4	R1, R2, R3	4,00	0,16
Tutorial M6	R1, R2, R3	8,00	0,32
Evaluation M7	R1, R2, R3	2,00	0,08
TOTAL		**60,00**	**2,40**

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
Student's self-employment M8	R1, R2, R3	60,00	2,40
Group work M9	R1, R2, R3	30,00	1,20
TOTAL		**90,00**	**3,60**

Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
UNIT 1: RESEARCH METHODOLOGY	·**Chapter 1:** Introduction to the research. Planning and organization of a research process. Research work stages. ·**Chapter 2:** Bibliographic research and documentation. ·**Chapter 3:** Hypothesis. Variables. Instruments. Research designs. Population and sample. ·**Chapter 4:** Data collection. Data analysis. Preparation of data for statistical analysis. Interpretation of research data. Conclusions. ·**Chapter 5:** Diffusion of the research results.
UNIT 2: DESCRIPTIVE STATISTICS	·**Chapter 6:** Statistics application in nursery. Statistics variable description. ·**Chapter 7:** Numerical description of a bidimensional statistics variable.
UNIT 3: PROBABILITY CALCULATION	·**Chapter 8:** Probability introduction. Random variable. Characteristics. Probability distribution models.
UNIT 4: INFERENTIAL STATISTICS	·**Chapter 9:** Simple random sampling. Estimation. ·**Chapter 10:** Hypothesis testing. Chi-Square test.Regression and correlation.

Temporary organization of learning:

Block of content	Number of sessions	Hours
UNIT 1: RESEARCH METHODOLOGY	14,00	28,00
UNIT 2: DESCRIPTIVE STATISTICS	4,00	8,00
UNIT 3: PROBABILITY CALCULATION	2,00	4,00
UNIT 4: INFERENTIAL STATISTICS	10,00	20,00

References

Basic bibliography
1. Moncho J. Estadística aplicada a las ciencias de la salud. 2ª ed. Barcelona: Elsevier; 2021.
2. Argimón JM, Jiménez J. Métodos de investigación clínica y epidemiológica. 5ª ed. Barcelona: Elsevier España; 2019.
3. Martínez-González MA, Sánchez Villegas A. Bioestadística amigable. 4ª ed. Barcelona: Elsevier; 2020.
4. Salamanca AB. El aeiou de la investigación en enfermería. Madrid: Ediciones Fuden; 2013.

Recomended bibliography
1. Touron J. Análisis de datos y medida en educación. Logroño: UNIR Editorial; 2023.
2. Spiegelhalter D. El arte de la estadística. Madrid: Capitán Swing; 2023.
3. Nussbaumer C. Storytelling con datos: visualización de datos para profesionales. 4ª ed. Madrid: Wiley-Anaya; 2017.