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: -

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
1211B	David Fernández García **(Responsible Lecturer)**	david.fernandez@ucv.es
1211C	David Fernández García **(Responsible Lecturer)**	david.fernandez@ucv.es
1211E	Belen Estefania Proaño Olmos **(Responsible Lecturer)**	be.proano@ucv.es
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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	4,50	ICT	4,50	This elective is not offered in the academic year 23/24
English	6,00	English	6,00	1/2
Life support	6,00	Emergency Care and Life Support	6,00	4/1

Recommended knowledge

1. Operation with equations with one or two unknown quantities.
2. Operation with fractions.
3. Simple mathematical calculations.
4. Use of scientific calculator.
5. Combinatorial analysis. Newton's Binomial and factorial calculation.
6. Equation of a straigth line.

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   To acquire knowledge of quantitative and qualitative research methodologies, applying them to the development of research projects.

R2   To demonstrate proficiency in handling statistical and inferential calculations.

R3   To interpret the results of statistical analyses for practical application.

R4   To base nursing interventions on scientific evidence and available resources.

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
6	To base interventions in nursing on scientific evidence and on the available means.				x
20	Carry out innovative proposals, based on previous knowledge, that respond to real situations in different contexts in the field of nursing.			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 | | |

Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R3, R4	60,00%	Theoretical written exams
R1, R2, R3, R4	40,00%	Practical tests and works
R4	0,00%	Attendance and active participation

Observations

·Theoretical written tests (60%) consist of the final exam and the continuous assessment tasks developed along the course.
·Practical tests and works (40%) consist of the group research project.

It is compulsory to obtain the qualification of 50% in the final exam mark to pass the subject.

The **final exam** will consist of two sections:
·The first one of objective questions type test (15 questions) with 4 possible answers and only one valid. Erroneous responses penalize according to the formula A-(E / n-1). Being A: number of hits, E: number of errors, n: number of response options.
·The second section of 3 problems to solve. It will be assessed not only the final result but also the solving process.

The **research project** will deal with any topic related to the heath care system, following the scientific method and the suggestions given along the semester.

Incorrect grammar, spelling and syntax will be marked negatively with -10%.

DEVELOPMENT OF THE SUBJECT IN SECOND AND SUCCESSIVE REGISTRATIONS
The evaluation criteria will be through an examination that will consist of two sections, one of objective questions type test (15 questions), and another section of problems (3 problems to be chosen among 4 problems). The first part (test) represents the 30% of the final grade and the second one (problems) the 70% of the final grade.
The test questions will have 4 possible answers and only one valid. Erroneous responses penalize

according to the formula A-(E / n-1). Being A: number of hits, E: number of errors, n: number of response options.

The lecturer in charge of group S (second and successive registrations) will inform the students of the day/s and hours of the tutoring sessions by means of the university e-learning platform (campusvirtual.ucv.es).

MENTION OF DISTINCTION:

According to Article 22 of the Regulations governing the Evaluation and Qualification of UCV Courses, the mention of "Distinction of Honor" may be awarded by the professor responsible for the course to students who have obtained, at least, the qualification of 9 over 10 ("Sobresaliente"). The number of "Distinction of Honor" mentions that may be awarded may not exceed five percent of the number of students included in the same official record, unless this number is lower than 20, in which case only one "Distinction of Honor" may be awarded.

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.

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
In-campus interactive lecture M1	R1, R2, R3, R4	32,00	1,28
Practice Classes M2	R1, R2, R3, R4	18,00	0,72
Tutorial M6	R1, R4	8,00	0,32
Evaluation M7	R1, R2, R3, R4	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, R4	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. Regression and correlation.
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. Parametric tests. Chi-Square test.

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
·Martín G, Introducción a la estadística. Universidad Católica de Valencia, Valencia: 2009
·Martín G, Prácticas de estadística básica con SPSS. Universidad Católica de Valencia, Valencia: 2008
·Salamanca A. B., El aeiou de la investigación en enfermería. Ed. Fuden. Madrid: 2013.
·Martínez-González MA y Sánchez Villegas A. Bioestadística amigable. 4ª ed. Madrid: Elsevier; 2020.
·Argimón, J.M., Jiménez, J. Métodos de Investigación clínica y epidemiológica. Elsevier España: 2000
Recomended bibliography
·Touron J. Análisis de Datos y Medida en Educación. 1ª ed. Logroño. UNIReditorial.2023
·Spiegelhalter D. El arte de la estadística. Madrid. Capitan Swing Libros. 2023
·Prieto, L., Herranz, I. Bioestadística sin dificultades matemáticas: en busca de tesoros escondidos. Ed. Díaz de Santos. 2010