



## 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:

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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
Biochemistry	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



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 straight 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 | 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

- 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 health 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.
- 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](http://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](http://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
<b>TOTAL</b>		<b>60,00</b>	<b>2,40</b>

## 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
<b>TOTAL</b>		<b>90,00</b>	<b>3,60</b>





## Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
UNIT 1: RESEARCH METHODOLOGY	<ul style="list-style-type: none"><li>·<b>Chapter 1:</b> Introduction to the research. Planning and organization of a research process. Research work stages.</li><li>·<b>Chapter 2:</b> Bibliographic research and documentation.</li><li>·<b>Chapter 3:</b> Hypothesis. Variables. Instruments. Research designs. Population and sample.</li><li>·<b>Chapter 4:</b> Data collection. Data analysis. Preparation of data for statistical analysis. Interpretation of research data. Conclusions.</li><li>·<b>Chapter 5:</b> Diffusion of the research results.</li></ul>
UNIT 2: DESCRIPTIVE STATISTICS	<ul style="list-style-type: none"><li>·<b>Chapter 6:</b> Statistics application in nursery. Statistics variable description.</li><li>·<b>Chapter 7:</b> Numerical description of a bidimensional statistics variable. Regression and correlation.</li></ul>
UNIT 3: PROBABILITY CALCULATION	<ul style="list-style-type: none"><li>·<b>Chapter 8:</b> Probability introduction. Random variable. Characteristics. Probability distribution models.</li></ul>
UNIT 4: INFERENCE STATISTICS	<ul style="list-style-type: none"><li>·<b>Chapter 9:</b> Simple random sampling. Estimation.</li><li>·<b>Chapter 10:</b> Hypothesis testing. Parametric tests. Chi-Square test.</li></ul>



## Temporary organization of learning:

Block of content	Number of sessions	Hours
UNIT 1: RESEARCH METHODOLOGY	14,25	28,50
UNIT 2: DESCRIPTIVE STATISTICS	4,25	8,50
UNIT 3: PROBABILITY CALCULATION	2,25	4,50
UNIT 4: INFERENTIAL STATISTICS	9,25	18,50

## References

### Basic bibliography

- Argimón, J.M., Jiménez, J. Métodos de Investigación clínica y epidemiológica. Elsevier España: 2000
- 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
- Álvarez R, Estadística aplicada a las ciencias de la salud. Ediciones Díaz de Santos. Madrid: 2007
- Martínez-González MA y Sánchez Villegas A. Bioestadística amigable. 4ª ed. Madrid: Elsevier; 2020.
- Prieto, L., Herranz, I. Bioestadística sin dificultades matemáticas: en busca de tesoros escondidos. Ed. Díaz de Santos. 2010
- Salamanca A. B., El aeiou de la investigación en enfermería. Ed. Fuden. Madrid: 2013.

### Specific Bibliography

- Carrasco, C. La paradoja del cuidado: necesario pero invisible. Revista de Economía Crítica. 2006
- Connelly Kudzma, E. Florence Nightingale and healthcare Reform. Nursing Science Quarterly, 2006
- J.M. Guevara. La estimación: construir intervalos de confianza. Enfermería científica N° 226-227, 2001
- Ritchey, FJ . Estadística para las ciencias sociales. El potencial de la imaginación estadística. McGraw Hill 2007



## Addendum to the Course Guide of the Subject

Due to the exceptional situation caused by the health crisis of the COVID-19 and taking into account the security measures related to the development of the educational activity in the Higher Education Institution teaching area, the following changes have been made in the guide of the subject to ensure that Students achieve their learning outcomes of the Subject.

**Situation 1: Teaching without limited capacity** (when the number of enrolled students is lower than the allowed capacity in classroom, according to the security measures taken).

In this case, no changes are made in the guide of the subject.

**Situation 2: Teaching with limited capacity** (when the number of enrolled students is higher than the allowed capacity in classroom, according to the security measures taken).

In this case, the following changes are made:

### 1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject will be made through a simultaneous teaching method combining onsite teaching in the classroom and synchronous online teaching. Students will be able to attend classes onsite or to attend them online through the telematic tools provided by the university (videoconferences). In any case, students who attend classes onsite and who attend them by videoconference will rotate periodically.

In the particular case of this subject, these videoconferences will be made through:

☒ Microsoft Teams

☒ Kaltura



## **Situation 3: Confinement due to a new State of Alarm.**

In this case, the following changes are made:

### **1. Educational Activities of Onsite Work:**

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject, as well as the group and personalized tutoring, will be done with the telematic tools provided by the University, through:

☒ Microsoft Teams

☒ Kaltura

Explanation about the practical sessions:



## 2. System for Assessing the Acquisition of the competences and Assessment System

### ONSITE WORK

#### Regarding the Assessment Tools:

☒

The Assessment Tools will not be modified. If onsite assessment is not possible, it will be done online through the UCVnet Campus.

☐

The following changes will be made to adapt the subject's assessment to the online teaching.

Course guide		Adaptation	
Assessment tool	Allocated percentage	Description of the suggested changes	Platform to be used

The other Assessment Tools will not be modified with regards to what is indicated in the Course Guide.

#### Comments to the Assessment System: