Information about the course

Degree: Bachelor of Science Degree in Human Nutrition and Dietetics

Faculty: Faculty of Medicine and Health Sciences

Code: 1311103 **Name:** Biostatistics

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

Module: Basic Sciences Module

Subject Matter: Estadística **Type:** Formación Básica

Branch of knowledge:

Department: Biostatistics, Epidemiology, and Public Health

Type of learning: Classroom-based learning

Language/-s in which it is given: Spanish

Teachers:

131A Marcelino Perez Bermejo **(Profesor responsable)** marcelino.perez@ucv.es

Module organization

Basic Sciences Module

Subject Matter	ECTS	Subject	ECTS	Year/semester
Biología	6	Biology and Genetics	6	1/1
Bioquímica	6	Biochemistry	6	1/2
Química	12	Basic Fundamentals of Chemistry	6	1/1
		Organic Chemistry	6	1/2
Fisiología	12	Physiology	6	1/2
Estadística	6	Biostatistics	6	1/1
Anatomía Humana	6	Human Anatomy	6	1/1
Antropología	12	Anthropology	6	1/1
Microbiología	6	Microbiology and Parasitology	6	1/2
Inglés	6	English	6	1/2

Recommended knowledge

This subject does not have any prerequisites.

Learning outcomes

At the end of the course, the student must demonstrate having acquired the following learning outcomes:

R1 - Hab5 - - Interpret and manage food composition databases and tables.

Learning outcomes of the specified title

Type of AR: Habilidades o Destrezas

- Having the ability to collect and interpret data and information on which to base their conclusions, including, when necessary and relevant, reflection on social, scientific or ethical issues within their field of study.

Type of AR: Conocimientos o contenidos

- To understand statistics applied to Health Sciences. To understand the psychological foundations and biopsychosocial factors that influence human behavior.

R2 - Hab1 - - Have the ability to collect and interpret data and information on which to base their conclusions, including, when necessary and relevant, reflection on social, scientific or ethical issues within their field of study.

Learning outcomes of the specified title

Type of AR: Habilidades o Destrezas

- Interpret and manage food composition databases and tables.

Type of AR: Conocimientos o contenidos

- To understand statistics applied to Health Sciences. To understand the psychological foundations and biopsychosocial factors that influence human behavior.

R3 - Con3 - - To understand statistics applied to Health Sciences. To understand the psychological foundations and biopsychosocial factors that influence human behavior.

Learning outcomes of the specified title

Type of AR: Habilidades o Destrezas

- Interpret and manage food composition databases and tables.

Type of AR: Conocimientos o contenidos

- To understand statistics applied to Health Sciences. To understand the psychological foundations and biopsychosocial factors that influence human behavior.

Assessment system

In-person modality

Assessed learning outcomes	Granted percentage	Assessment tool
R1, R2, R3	30,00%	Assessment of individual or group activities or practical exercises, which require students to research and organize information related to each subject, and solve cases or problems. This is done through a continuous assessment system throughout the course, which involves the submission and/or presentation of assignments, the objectives and content of which will be set by the instructor.
R1, R2, R3	65,00%	Written assessment of the knowledge and skills acquired. This test may consist of a series of open-ended or multiple-choice questions on the theoretical content of the subject and/or practical exercises (problem-solving).
R1, R2, R3	5,00%	Evaluation of the effectiveness of practical classroom classes, problem-solving or computer science sessions, seminars and tutorials. Through attendance and participation in the various activities planned.

Observations

A minimum grade of 5 to averaging is needed.
This course does not allow for a single assessment, as it requires the mandatory completion of practical activities with active student participation.
On the Use of AI:
Students are allowed to use AI for the following purposes:
·Clarifying doubts related to learning activities
·Assisted learning (e.g., alternative explanations or self-assessment exercises)
·Searching for alternative study resources and references
Students are not allowed to use AI for the following purposes:
·Recording or transcribing, in whole or in part, any classroom activity in order to generate AI-produced summaries or notes
·Generating text for assignments related to Activity X
·Presenting AI-generated work as their own

·Providing AI tools with prompts, exercises, or assessment tasks to obtain automated answers
Citation and Attribution Criteria:
·If AI is used in any activity, students must indicate which part of the activity involved AI, which tool was used, and for what purpose.

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. The criteria for awarding "Matrícula de Honor" (Honours with Distinction) will be determined according to the guidelines stipulated by the professor responsible for the course, as detailed in the "Observations" section of the evaluation system in the course guide.

Training activities

The methodologies to be used so that the students reach the expected learning outcomes will be the following:

M2	Group preparation of readings, essays, problem-solving, seminars, papers, reports, etc... for discussion or submission
M3	Personalized attention in small groups. A period of instruction and/or guidance provided by a tutor to review and discuss the materials and topics presented in classes, seminars, readings, assignments, etc. Student attendance and their gradual progress in understanding the subjects will be evaluated.
M5	Student study: individual preparation of readings, essays, problem solving, seminars, papers, memoirs, etc. for discussion or submission in electronic format.
M7	Individual or group work sessions in groups supervised by the teacher, which take place in spaces with specialized equipment.
M8	Practical exercises and case studies, analysis of evaluation procedures and procedural intervention. All of this with the support of the professor. This aspect can be monitored through attendance and active participation in the practical sessions.

M9 The teacher will present the content, analyze competencies, and explain and demonstrate skills, abilities, and knowledge in the classroom.
The whiteboard, computer, and projector will be used to display texts, graphics, etc.

IN-CLASS TRAINING ACTIVITIES

ACTVITY	RELATIONSHIP WITH THE COURSE LEARNING OUTCOMES	METHODOLOGY	HOURS	ECTS
ASSESSMENT	R1, R2, R3	Group preparation of readings, essays, problem-solving, seminars, papers, reports, etc... for discussion or submission	2,00	0,08
TUTORING	R1, R2	Personalized attention in small groups. A period of instruction and/or guidance provided by a tutor to review and discuss the materials and topics presented in classes, seminars, readings, assignments, etc. Student attendance and their gradual progress in understanding the subjects will be evaluated.	2,00	0,08

PRACTICAL CLASSES	R1, R2, R3	Individual or group work sessions in groups supervised by the teacher, which take place in spaces with specialized equipment. Practical exercises and case studies, analysis of evaluation procedures and procedural intervention. All of this with the support of the professor. This aspect can be monitored through attendance and active participation in the practical sessions.	25,00	1,00

THEORETICAL CLASSES	R1, R2, R3	Individual or group work sessions in groups supervised by the teacher, which take place in spaces with specialized equipment. Practical exercises and case studies, analysis of evaluation procedures and procedural intervention. All of this with the support of the professor. This aspect can be monitored through attendance and active participation in the practical sessions. The teacher will present the content, analyze competencies, and explain and demonstrate skills, abilities, and knowledge in the classroom. The whiteboard, computer, and projector will be used to display texts, graphics, etc.	31,00	1,24
TOTAL			**60,00**	**2,40**

TRAINING ACTIVITIES OF AUTONOMOUS WORK

ACTVITY	RELATIONSHIP WITH THE COURSE LEARNING OUTCOMES	METHODOLOGY	HOURS	ECTS
INDEPENDENT GROUP WORK	R1, R2, R3	Student study: individual preparation of readings, essays, problem solving, seminars, papers, memoirs, etc. for discussion or submission in electronic format.	20,00	0,80
INDIVIDUAL SELF-EMPLOYMENT	R1, R2, R3	Student study: individual preparation of readings, essays, problem solving, seminars, papers, memoirs, etc. for discussion or submission in electronic format.	70,00	2,80
TOTAL			**90,00**	**3,60**

Description of contents

Description of content necessary for the acquisition of learning outcomes.

Theoretical content:

Block of content	Contents
Descriptive statistics	Description of samples and populations. Types of variables. Frequency distribution. Location and dispersion measurements. Description of a population: population parameters
Introduction to probability	Introduction to probability. Independent and dependent events. Bayes formula. Random sampling: types and features. Probability, discrete and continuous distributions.
Sampling distribution. Confidence intervals	The sampling distribution: mean, variance, proportions. The difference in average sample sampling distribution. Confidence intervals for different population parameters. Determination of the sample size.
Hypothesis contrasts	Hypothesis contrasts: stages. Types of errors in contrast. T and Chi-square test. Concept of p-value: calculation.
ANOVA	One-way analysis of variance, fixed effects, completely randomized.Fundamental relationships of ANOVA: the F-test.Assumptions for applying ANOVA.Multiple comparison procedures.Simple and multiple linear regressions.

Temporary organization of learning:

Block of content	Sessions	Hours
Descriptive statistics	5	10,00
Introduction to probability	6	12,00
Sampling distribution. Confidence intervals	5	10,00
Hypothesis contrasts	6	12,00
ANOVA	8	16,00

References

Martínez González MA, Sánchez-Villegas A, Toledo Atucha E. *Bioestadística amigable*. 3.ª ed. Barcelona: Elsevier; 2021.

Pagano M, Gauvreau K. *Principios de Bioestadística*. 2.ª ed. México: Cengage Learning; 2012.

Doménech Massons JM. *Bioestadística para no estadísticos: Un libro para entender, razonar y aplicar la estadística*. 2.ª ed. Barcelona: Elsevier; 2022.

Argimón Pallàs JM, Jiménez Villa J. *Métodos de investigación clínica y epidemiológica*. 5.ª ed. Barcelona: Elsevier; 2019.

Peña Sánchez AR. *Bioestadística para ciencias de la salud*. 3.ª ed. México: Trillas; 2018.

Delgado Rodríguez M, Llorca Díaz J. *Diseño y análisis de estudios epidemiológicos*. Madrid: Díaz de Santos; 2004.