Information about the subject

Degree: Bachelor of Sciences of Physical Activity and Sport

Faculty: Faculty of Physical Activity and Sport Sciences

Code: 281102 **Name:** Biochemistry and Human Physiology

Credits: 9,00 **ECTS Year:** 1 **Semester:** 1/2

Module: 1) Basic Training Module

Subject Matter: Biological and Mechanical Foundations of Human Motor Skills **Type:** Basic Formation

Field of knowledge: Health Sciences

Department: Basic Sciences and Cross-disciplinary Subjects

Type of learning: Classroom-based learning

Languages in which it is taught: Spanish

Lecturer/-s:

1161DG	Luis Ferrando Mestre **(Profesor responsable)**	luis.ferrando@ucv.es
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Module organization

1) Basic Training Module

Subject Matter	ECTS	Subject	ECTS	Year/semester
Biological and Mechanical Foundations of Human Motor Skills	36,00	Biochemistry and Human Physiology	9,00	1/2
		Biomechanics of Physical Activity	6,00	2/1
		Human Anatomy	9,00	1/2
		Kinesiology	6,00	2/1
		Physiology of Exercise	6,00	2/1
Behavioral and social foundations of human motor skills.	24,00	History and Sociology of Physical Activity and Sport	6,00	1/2
		Sport Psychology	6,00	1/2
		Statitics and Data Processing	6,00	2/2
		Technology Applied to Physical Activity and Sport	6,00	1/1

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 Recognize, interpret, and explain physiological processes occurring in the human body.

R2 Measure and interpret physiological parameters.

R3 Use bibliographic information sources (both in Spanish and English) related to human physiology appropriately.

Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2	60,00%	Written and/or practical tests.
R1, R2, R3	40,00%	Exercises and Practices in the Classroom.

Observations

·In the written and/or practical tests of the subject, there may be eliminatory partial exams of the subject. These will consist of 50 multiple-choice questions, with four answer options, only one of which is true.

·If the student fails the midterm or fails both midterms, he/she will have an exam of 75 multiple-choice questions, with four answer options, only one of which is true.

·A compulsory attendance of 70% of the sessions is required.

·The student may keep the assessment instruments passed during the 3 years following the first registration.

·It is necessary to obtain 45% in all the instruments to pass the subject. The resulting mark for all the instruments must be equal to or higher than 50% to pass the course.

·If any of these criteria is not met, the student will be graded with a maximum of 4.5.

·This subject is NOT eligible for single assessment according to article 10.3 of the GENERAL RULES FOR ASSESSMENT AND GRADING OF OFFICIAL COURSES AND UCV's OWN DEGREES.

The detailed explanation (procedure of the tasks) as well as the evaluation instruments (cards or rubrics) of each section will be published on the platform of each group at the student's disposal.

Use of Artificial Intelligence Tools in the CAFD Degree Program

Use of Artificial Intelligence tools in the CAFD degree program In the Bachelor's Degree in Physical Activity and Sports Sciences (CAFD), the use of Artificial Intelligence (AI) tools is permitted in a complementary and responsible manner, as long as it contributes to active learning, the development of critical thinking, and the improvement of students' professional skills. Under no circumstances should AI replace personal effort, direct practice, or independent reflection, which are fundamental pillars of this degree program.

Permitted Uses of AI:
·Obtaining alternative explanations of theoretical or methodological concepts.
·Generating outlines, concept maps, or summaries to support study.
·Simulating interviews, questionnaires, or training sessions as part of methodological or research practices.
·Receiving feedback on report writing, provided that the original content is the student's own.
·Supporting the search for bibliography or scientific references, always contrasting with reliable and real academic sources, and respecting the CAFD regulations for the presentation of university work.

Prohibited Uses of AI:
·Writing complete sections of academic papers, classroom exercises and practices, internship reports, journals, or portfolios, as well as the Final Degree Project.
·Formulating hypotheses, objectives, or conclusions for academic work.
·Replacing qualitative or quantitative data analysis with automated tools without human validation.
·Creating videos, presentations, or avatars with AI as a substitute for the student's oral or practical presentation.
·Obtaining automatic answers to tests, rubrics, or assessable activities through the use of AI.

Citation and Attribution Guidelines:
·Any use of AI tools must be explicitly acknowledged in the submitted document (e.g., in a footnote or appendix).
·The name of the tool, the purpose of use (e.g., grammatical review, organization of ideas, interview simulation), and where it was used in the work must be indicated.
·Responsible use of AI will be evaluated within the framework of originality, academic honesty, and digital competence.

Additional recommendations:
Students are encouraged to combine the use of AI with traditional methods (manual problem solving, practical session design, direct observation, etc.) to ensure the comprehensive development of their skills.

If there are any doubts about the permitted use of AI in a specific activity, students should consult the faculty responsible for the course.

Learning activities

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

M1 Attendance at practices.

M2 Resolution of problems and cases.

M3 Discussion in small groups.

M4 Practical laboratories.

M5 Presentation of content by the teacher.

M6 Practical lesson.

M7 Group dynamics and activities.

IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
THEORETICAL CLASS: Presentation of contents by the teacher. Competency analysis. Demonstration of capabilities, skills and knowledge in the classroom. M3, M5, M7	R1, R2	82,00	3,28
PRACTICAL CLASS / SEMINAR: Group dynamics and activities. Resolution of problems and cases. Practical laboratories. Data search, computer classroom, library, etc. Meaningful construction of knowledge through student interaction and activity. M2, M3, M6, M7	R1, R2	4,00	0,16
EVALUATION: Set of oral and/or written tests used in the evaluation of the student, including the oral presentation of the final degree project. M2, M7	R1, R2, R3	4,00	0,16
TOTAL		**90,00**	**3,60**

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
GROUP WORK: Problem solving. Preparation of exercises, memoirs, to present or deliver in classes and/or in tutoring. M2, M7	R1, R2, R3	30,00	1,20
SELF-EMPLOYED WORK: Study, Individual preparation of exercises, assignments, reports, to present or deliver in classes and/or in tutoring. Activities in platform or other virtual spaces. M2	R1, R2, R3	105,00	4,20
TOTAL		**135,00**	**5,40**

Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
1. Introduction to Biochemistry	Introduction to Biochemistry
2. Main molecules of biological interest	2.1. Carbohydrates 2.2. Lipids 2.3. Proteins
3. Metabolism	3.1. Introduction to metabolism 3.2. Metabolism of carbohydrates 3.3. Metabolism of lipids 3.4. Protein metabolism
4. Enzymes	Enzymes
5. Integration of metabolism	Integration of metabolism
6. Flow of genetic information	Flow of genetic information
7. Clinical biochemistry	Clinical biochemistry
8. Vitamins	Vitamins
9. Membranes and transport systems	Membranes and transport systems
10. Physiology of the circulatory system	Physiology of the circulatory system
11. Physiology of the respiratory system	Physiology of the respiratory system
12. Physiology of the digestive system	Physiology of the digestive system
13. Physiology of the endocrine system	Physiology of the endocrine system

14. Physiology of the muscular system	Physiology of the muscular system
15. Physiology of the nervous system	Physiology of the nervous system
16. Physiology of the renal system	Physiology of the renal system

Temporary organization of learning:

Block of content	Number of sessions	Hours
1. Introduction to Biochemistry	1,50	3,00
2. Main molecules of biological interest	7,00	14,00
3. Metabolism	7,00	14,00
4. Enzymes	1,50	3,00
5. Integration of metabolism	1,50	3,00
6. Flow of genetic information	1,50	3,00
7. Clinical biochemistry	1,50	3,00
8. Vitamins	1,50	3,00
9. Membranes and transport systems	1,50	3,00
10. Physiology of the circulatory system	4,50	9,00
11. Physiology of the respiratory system	2,50	5,00
12. Physiology of the digestive system	1,50	3,00
13. Physiology of the endocrine system	3,00	6,00
14. Physiology of the muscular system	4,00	8,00

15. Physiology of the nervous system	2,50	5,00
16. Physiology of the renal system	2,50	5,00

References

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Feduchi, E., Romero, C., Yáñez, E. y García-Hoz, C. (2021). Bioquímica. Conceptos esenciales. (3º ed). Elsevier.
Hall, J.E. y Hall, J.E. (2021). Guyton & Hall. Tratado de Fisiología Médica. Elsevier Hall, S. y Stephens, J. (2020). Lo esencial en Anatomía y Fisiología. Elsevier
Calderón, F.J. (2019). Fisiología Humana. Aplicación a la actividad física. Editorial Médica Panamericana
Costanzo, L.S. y Costanzo, L.S. (2018). Fisiología. Elsevier
Derrickson, B. (2018). Fisiología Humana. Editorial Médica Panamericana Koeppe, B.M. y Stanton, B.A. (2018). Berne y Levy. Fisiología. Elsevier
Tortora, G.J. y Derrickson, B. (2017). Principios de Anatomía y Fisiología (15ª ed.). Editorial Médica Panamericana
Teijón, J.M., Blanco, M.D., Olmo, R.M., Posada, P., Teijón, C. y Villarino, A. (2016). Fundamentos de bioquímica metabólica. Tébar Flores
Herrera, E., Ramos, M.P., Roca, P. y Viana, M.M. (2014). Bioquímica Básica. Elsevier