Information about the subject

Degree: Bachelor of Science Degree in Physiotherapy

Faculty: Faculty of Medicine and Health Sciences

Code: 241110 **Name:** Physiology I

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

Module: MODULE 1: BASIC FORMATION

Subject Matter: Physiology **Type:** Basic Formation

Field of knowledge: Health Sciences

Department: Anatomy and Physiology

Type of learning: Classroom-based learning

Languages in which it is taught: English, Spanish

Lecturer/-s:

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Module organization

MODULE 1: BASIC FORMATION

Subject Matter	ECTS	Subject	ECTS	Year/semester
Anatomy	18,00	Anatomy I	6,00	1/1
		Anatomy II	6,00	1/2
		Cellular and Molecular Biology	6,00	1/1
Physiology	18,00	Biomechanics and Applied Physics	6,00	2/1
		Physiology I	6,00	1/2
		Physiology II	6,00	2/1
Applied psychosocial sciences	12,00	Anthropology	6,00	1/2
		Psychology	6,00	1/2
Statistics	6,00	Biostatistics	6,00	1/1
Modern Language	6,00	English	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 Knows the main disciplines that make up the physiological sciences, their foundations and areas of work.

R2 Distinguishes the different levels of organization of systems in human beings.

R3 Uses different working techniques in the laboratory.

R4 Applies general knowledge of Histology, Physiology and Pharmacology

R5 Searches for bibliographic information from different sources and knows how to analyze it with a critical and constructive spirit.

R6 The student is capable of preparing documents on Physiology and Pharmacology, and of working in a team.

R7 Analyses critically his/her actions and works.

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 demonstrate knowledge and understanding 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 know how 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	Students can convey information, ideas, problems and solutions to both specialized and non-specialized audiences.	x			
CB5	Students develop those learning skills necessary to undertake further studies with a high degree of autonomy.	x			

SPECIFIC		Weighting			
		1	2	3	4
CE1	Students learn human anatomy and physiology, highlighting the dynamic relations between structure and function, especially of the locomotive system and the nervous and cardio-respiratory systems.				x
CE3	Students identify the factors that influence human growth and development throughout life.		x		
CE4	Students know the principles and theories of physics, biomechanics, kinesiology and ergonomics, applicable to physiotherapy.	x			

CE5	Students know the physical bases of the different physical agents and their applications in Physiotherapy.	x			
CE6	Students know the principles and applications of measurement procedures based on biomechanics and electrophysiology.	x			
CE7	Students know the application of ergonomic and anthropometric principles.	x			
CE9	Students assimilate theories of communication and interpersonal skills.	x			
CE10	Learning theories to be applied in health education and in your own lifelong learning process	x			
CE11	Students identify the factors involved in teamwork and leadership situations.	x			
CE13	The structural, physiological, functional and behavioral changes that occur as a result of the intervention of physiotherapy.		x		
CE30	Students determine the Physiotherapy Diagnosis according to the internationally recognized standards and international validation instruments. This competency includes prioritizing the needs of the patient/user to attend with priority to those that most compromise the recovery process.	x			
CE41	Students keep the foundations of the knowledge, skills and attitudes of the professional competences updated, through a process of continuous training (throughout life); to critically analyse the methods, protocols and treatments of the care in Physiotherapy and to ensure that they are adapted to the evolution of scientific knowledge.	x			
CE47	Students maintain an attitude of learning and improvement. This includes expressing interest and acting in a constant search for information and professional improvement, committing to contribute to professional development in order to improve practice competence and maintain the status that corresponds to a qualified and regulated profession.		x		
CE51	Show respect, appreciation and sensitivity to the work of others.	x			
CE52	Develop the ability to organize and lead work teams effectively and efficiently.	x			

TRANSVERSAL	Weighting			
	1	2	3	4

CT1	Decision-making		x		
CT2	Problem solving.		x		
CT3	Capacity for organization and planning.	x			
CT4	Analysis and synthesis capacity.	x			
CT5	Oral and written communication in the native language.			x	
CT6	Information management capacity.			x	
CT7	Computer skills related to the field of study.				x
CT8	Knowledge of a foreign language.		x		
CT9	Ethical commitment.	x			
CT10	Teamwork.		x		
CT11	Interpersonal relationship skills.	x			
CT12	Work in an interdisciplinary team		x		
CT13	Critical Reasoning	x			
CT14	Work in an international context.	x			
CT15	Recognition of diversity and multiculturalism		x		
CT16	Motivation for quality	x			
CT17	Adaptation to new situations.	x			
CT18	Creativity	x			
CT19	Autonomous learning	x			
CT20	Initiative and entrepreneurship	x			

CT21	Leadership.			x
CT22	Knowledge of other cultures and customs	x		
CT23	Sensitivity to environmental issues.	x		

Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R4, R6, R7	60,00%	TEST TYPE: Multiple choice test with one correct answer out of five possible ones. It allows the student to know in greater detail the contents acquired by him/her. It allows the following generic or transversal competences to be assessed: 2 Problem solving 1 Decision making 13 Critical thinking
R1, R2, R3, R4, R5, R6, R7	10,00%	PRACTICES: Oral test in which the student is asked to solve practical exercises, clinical cases or problems about the knowledge of the different subjects. It assesses the following generic or transversal competences: 4 Analysis and synthesis capacity. 3 Capacity for organisation and planning. 7 IT Knowledge. 6 Information management skills. 2 Problem-solving 1 Decision-making. 13 Critical thinking. 19 Self-directed learning.
R1, R2, R3, R4, R5, R6, R7	10,00%	WORKS: The student, individually or in a group, elaborates a revision or research topic and presents it, in writing, for the evaluation by the teacher. The following generic or transversal competences are valued: 4 Capacity for analysis and synthesis. 3 Capacity for organisation and planning. 7 Computer skills. 6 Information management skills. 10 Teamwork. 14 Working in an international context. 11 Interpersonal skills. 13 Critical thinking. 19 Autonomous learning. 18 Creativity. 21 Leadership. 20 Initiative and entrepreneurship. 16 Motivation for Quality. 70 Maintaining an attitude of learning and improvement. 72 Knowing one's own skills and limitations.

R1, R2, R3, R4, R5, R6, R7	10,00%	PRACTICAL EXAM: The student is faced with a test in which s/he must demonstrate through practical application the acquisition of certain knowledge. For example, histological or anatomopathological diagnosis, image interpretation or diagnostic tests. This test evaluates the following generic or transversal skills: 13 Critical reasoning. 19 Autonomous learning.
R1, R2, R3, R4, R5, R6, R7	10,00%	PRESENTATION: The student develops, through an oral presentation, supported or not by audiovisual means, a subject or work commissioned by the teacher. This is the method of evaluation of the Final Degree's Project. At the end of the presentation, the teacher or the audience can ask questions.
	0,00%	ATTENDANCE AND PARTICIPATION IN CLASS: The teacher evaluates the participation, involvement and progression of the student's acquisition of knowledge and skills during the theoretical and practical classes. It will not exceed 5% of the final grade.

Observations

This subject does not allow for a single assessment, as it requires the compulsory completion of practical activities with the active participation of students.

Honors award

Students with a 9-point grade or higher are eligible to be awarded with honors. Honors may be awarded at most to 1 student for every 20 enrolled students (not per fraction of 20 unless the number of enrolled students is lower than 20).

USE OF AI

Students may use AI for personal study of the subject. Students may not use AI for assessable assignments, unless required in a specific activity and indicated by the instructor. If AI is used in any activity, the specific part of the activity, the AI tool used, and the purpose for which it was used must be stated.

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.

Learning activities

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

M1	Master class Problem solving Exposition of contents by the teacher. Explanation of knowledge and skills
M2	Case resolution: Analysis of sample realities - real or simulated - that allow the student to connect theory with practice, to learn from models of reality or to reflect on the processes used in the cases presented.
M4	Personalized attention. Period of instruction and/or guidance by a tutor with the aim of analyzing with the student their work, activities and their evolution in learning the subjects.
M5	Set of tests carried out to know the degree of acquisition of knowledge and skills of the student.
M12	Group work: Group work sessions supervised by the teacher. Knowledge construction through student interaction and activity.
M14	Group work to search, discuss and filter information about the subjects
M15	Seminar, supervised monographic sessions with shared participation
M16	Student's study: Individual preparation of readings, essays, problem solving, seminars.

IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Theoretical lessons M1	R1, R2, R3, R4, R5, R6	54,00	2,16
Practice lessons M2	R1, R2, R3, R4, R5, R6, R7	2,00	0,08
Office Hours M4	R3, R4, R5, R6	2,00	0,08
Assessment M5	R1, R2, R3, R4, R5, R6, R7	2,00	0,08
TOTAL		**60,00**	**2,40**

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
Autonomous work M16	R1, R2, R3, R4, R5, R6, R7	75,00	3,00
Group work M12	R1, R2, R3, R4, R5, R6, R7	15,00	0,60
TOTAL		**90,00**	**3,60**

Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
INTRODUCTION	Introduction and Generalities. Liquid body compartments. Homeostasis. Cell physiology. Cell signaling. Transport across plasma membrane
NERVOUS SYSTEM	Functional organization of the Nervous System. Action potential. Neurotransmitters. Synapses. Superior functions of the Central Nervous System. Physiology of the cerebrospinal fluid. Spinal reflexes. Peripheral Nervous System. Sympathetic and Parasympathetic Nervous Systems. Sensory Physiology. Sensitive pathways. Proprioception. Vestibular and equilibrium receptors. Physiology of pain
ENDOCRINE SYSTEM	Physiology of the hypothalamus-hypophysis axis. Endocrine glands. Classification, synthesis, transport, mechanism of action and regulation of hormones Thyroid and parathyroid gland. Adrenal cortex. Endocrine pancreas. Other glands. Male and female reproductive system.
MUSCULAR SYSTEM	Physiology of skeletal, smooth and cardiac muscle. Neuromuscular junction. Muscle mechanics. Exercise and muscle
PHARMACOLOGY IN PHYSIOTHERAPY	Basic physiopathology and pharmacological contribution
PRACTICES	Exploration of sensitivity. Reflexes

Temporary organization of learning:

Block of content	Number of sessions	Hours
INTRODUCTION	5,00	10,00
NERVOUS SYSTEM	10,00	20,00
ENDOCRINE SYSTEM	6,00	12,00
MUSCULAR SYSTEM	4,00	8,00
PHARMACOLOGY IN PHYSIOTHERAPY	4,00	8,00
PRACTICES	1,00	2,00

References

1. Constanzo, L.S. PHYSIOLOGY. 7th Edition. Elsevier. 2021
2. Patton, K. & Thibodeau, G. ANATOMY & PHYSIOLOGY. 8th Edition. Elsevier 2012
3. Tortora, G. & Derrickson, B. PRINCIPLES OF ANATOMY AND PHYSIOLOGY. 16th Edition. Editorial médica Panamericana. 2017
4. Ira Fox, S. HUMAN PHYSIOLOGY 16 Edition. Mc Graw Hill. 2021
5. Guyton & Hall. TEXTBOOK OF MEDICAL PHYSIOLOGY. 14th Edition. Elsevier. 2020
6. Koeppen, B.M. Berne & levy: PHYSIOLOGY. 8th Edition. Elsevier 2023
7. Ganong's. REVIEW OF MEDICAL PHYSIOLOGY. 26th Edition. McGraw Hill. 2019