Information about the course

Degree: Bachelor of Science Degree in Medicine

Faculty: Faculty of Medicine and Health Sciences

Code: 341205 **Name:** Human Physiology II

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

Module: Morphology, structure and function of the human body

Subject Matter: Fisología **Type:** Formación Básica

Branch of knowledge: Ciencias de la Salud

Department: Anatomy and Physiology

Type of learning: Classroom-based learning

Language/-s in which it is given: Spanish

Teachers:

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Module organization

Morphology, structure and function of the human body

Subject Matter	ECTS	Subject	ECTS	Year/semester
Anatomía	27	Anatomy II	9	2/1
		Anatomy III	6	2/2
		Embryology and Anatomy I	12	1/2
Biología	6	Cell Biology	6	1/1
Bioquímica	9	Biochemistry and Molecular Biology	9	1/2
Física	6	Biophysics	6	1/2
Fisología	12	Human Physiology I	6	2/1
		Human Physiology II	6	2/2
Morfología y estructura microscópica del cuerpo humano	6	Histology	6	2/1

Learning outcomes

Al finalizar la asignatura, el estudiante deberá demostrar haber adquirido los siguientes resultados de aprendizaje:

R1 - Know the basic principles of physiology

Learning outcomes of the specified title

Type of AR: Description

- Students have demonstrated to possess and understand knowledge in a study area that starts from the base of the general secondary education, and is usually found at a level that, while supported by advanced textbooks, also includes some aspects that involve knowledge from the forefront of their field of study

R12 - Know how to perform a general physiological examination.

Learning outcomes of the specified title

Type of AR: Description

- Handling basic laboratory materials and techniques. Interpreting a normal analysis

Type of AR: Description

- Performing functional tests, determine vital parameters, and interpret them. Basic physical examination

R2 - Know the functioning of the different devices and systems, having the basis to be able to interpret the pathological clinical situations later

Learning outcomes of the specified title

Type of AR: Description

- Handling basic laboratory materials and techniques. Interpreting a normal analysis

Type of AR: Description

- Understanding and recognizing the normal structure and function of the human body, at the molecular, cellular, tissue, organic and systems levels, at the different stages of life and in both sexes

Type of AR: Description

- Students can pass on information, ideas, problems and solutions to both a specialized and non-specialized audience

- Students have the ability to collect and interpret relevant data (usually within their area of study) to make judgments that include a reflection on relevant social, scientific or ethical topics

- Students know how to apply their knowledge to their job or vocation in a professional way and possess the competences that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of study

R3 - Being able to relate the basic functioning of the different systems and devices, highlighting the common or particular aspects between them

Learning outcomes of the specified title

Type of AR: Description

- Understanding and recognizing the normal structure and function of the human body, at the molecular, cellular, tissue, organic and systems levels, at the different stages of life and in both sexes

Type of AR: Description

- Performing functional tests, determine vital parameters, and interpret them. Basic physical examination

R4 - Know the normal range of the most common analytical data and correctly interpret normal physiological records

Learning outcomes of the specified title

Type of AR: Description

- Handling basic laboratory materials and techniques. Interpreting a normal analysis

R5 - Actively understand and participate in clinical and/or laboratory practices

Learning outcomes of the specified title

Type of AR: Description

- Handling basic laboratory materials and techniques. Interpreting a normal analysis

Type of AR: Description

- Students have the ability to collect and interpret relevant data (usually within their area of study) to make judgments that include a reflection on relevant social, scientific or ethical topics

R6 - Show problem-solving ability based on clinical cases based on the physiology that is presented to you

Learning outcomes of the specified title

Type of AR: Description

- Students have the ability to collect and interpret relevant data (usually within their area of study) to make judgments that include a reflection on relevant social, scientific or ethical topics

R7 - Being able to write an understandable and organized text on various aspects of human physiology

Learning outcomes of the specified title

Type of AR: Description

- Students can pass on information, ideas, problems and solutions to both a specialized and non-specialized audience

- Students have the ability to collect and interpret relevant data (usually within their area of study) to make judgments that include a reflection on relevant social, scientific or ethical topics

- Students know how to apply their knowledge to their job or vocation in a professional way and possess the competences that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of study

R8 - Being able to produce documents on physiology by working as a team

Learning outcomes of the specified title

Type of AR: Description

- Developing professional practice with respect for other health professionals, acquiring teamwork skills

R9 - Argumenting with rational criteria from your work

Learning outcomes of the specified title

Type of AR: Description

- Students can pass on information, ideas, problems and solutions to both a specialized and non-specialized audience

- Students have the ability to collect and interpret relevant data (usually within their area of study) to make judgments that include a reflection on relevant social, scientific or ethical topics

- Students know how to apply their knowledge to their job or vocation in a professional way and possess the competences that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of study

Assessment system

Modalidad presencial

Assessed learning outcomes	Granted percentage	Assessment tool
R1, R2, R3, R4, R6, R7, R9, R12	25,00%	Open questions
R1, R2, R3, R4, R6, R9, R12	60,00%	Tests
R4, R5, R6, R7, R8, R9, R12	10,00%	Work
R1, R2, R3, R4, R6, R12	5,00%	Participation in class

Observations

Final Exam:
The final exam will consist of multiple-choice questions and open-ended questions, accounting for 85% of the course. A passing score of 5 out of 10 is required before the remaining grades are added to the final grade.
Criteria for awarding honors:
Honors may be awarded to the best students, who must have obtained a minimum grade of at least 9 as a requirement to be eligible.
If circumstances require it, a special test may be established to determine which students deserve honors, taking into account the 5% limit of enrolled students.
In the second and subsequent exam sessions, only honors that remain available after the first exam session may be awarded.

Notes:
Single assessment is not available for this course.
Use of AI: Students may use AI for personal study of the subject. Students may not use AI to complete assessable tasks unless required in a specific activity and instructed 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.

Actividades formativas

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

M1	Masterclass
M4	Content presentations by teacher
M6	Laboratory practices
M11	Personalised attention by professor
M15	Personal study
M17	Discussion and solving issues in group
M18	Work in team

IN-CLASS TRAINING ACTIVITIES

ACTVITY	RELATIONSHIP WITH THE COURSE LEARNING OUTCOMES	METHODOLOGY	HOURS	ECTS
Theory class	R1, R2, R3, R4	Masterclass Content presentations by teacher	46,00	1,84
Practices in small groups	R2, R3, R4, R5, R6, R7, R8, R9	Laboratory practices Discussion and solving issues in group Work in team	8,00	0,32
Tutoring	R9	Personalised attention by professor	3,00	0,12
Evaluation	R1, R2, R3, R4, R5, R6, R7, R8, R9	Personal study	3,00	0,12
TOTAL			**60,00**	**2,40**

TRAINING ACTIVITIES OF AUTONOMOUS WORK

ACTVITY	RELATIONSHIP WITH THE COURSE LEARNING OUTCOMES	METHODOLOGY	HOURS	ECTS
No attendance	R7, R8, R9	Personal study Discussion and solving issues in group Work in team	90,00	3,60
TOTAL			**90,00**	**3,60**

Description of contents

Descripción de contenidos necesarios para la adquisición de los resultados de aprendizaje.

Theoretical content:

Block of content	Contents
PHYSIOLOGY OF THE ENDOCRINE SYSTEM.	·Introduction to the physiology of the endocrine system. ·Mechanism of action of hormones. Neuroendocrine integration: ·Hypothalamic-pituitary axis. ·Neurohypophysis. Adenohypophysis. Pineal gland. ·Thyroid. ·Adrenal capsule: cortex and medulla. ·Pancreas. Regulation of glycemia. Adipose tissue as an endocrine organ. ·Endocrine regulation of calcium, phosphate and magnesium metabolism. Bone physiology. ·Reproductive system. Sex differentiation. Male system. Female system. Mammary gland Sexual response and fertilization.

NEUROPHYSIOLOGY	·General physiology of sensitivity and the sensory receptor I. Sensory receptors: categories. Generating potential. Transmission routes. ·General physiology of sensory sensitivity and receptor II. Physiology of somatosensory sensitivity. ·General physiology of sensitivity and the sensory receptor III. Hearing Physiology. Physiology of taste and smell ·General physiology of sensitivity and the sensory receptor IV. Physiology of vision. ·Physiology of pain. ·Motor systems (I). Functional organization of the nervous system for movement control. Motor units and muscle receptors. Spinal control of movement. ·Motor systems (II). Brainstem control of muscle tone and posture. Cortical control of movement. Modulation of movement by the cerebellum and basal ganglia. ·Complex brain functions. Areas of association of the cortex: parietal cortex (attention), temporal cortex (recognition), frontal cortex (planning). Brain localization of language. Brain lateralization and language. ·Physiology of emotions. ·Sleep and wakefulness. Sleep and circadian rhythms. Phases of sleep. Neural circuits of sleep control. ·Memory and learning. Types of memory. Declarative and non-declarative memory brain systems. Cellular bases of learning and memory. ·Cerebrospinal fluid and blood-brain barrier. ·Thermoregulation.
PHYSIOLOGY OF THE DIGESTIVE SYSTEM	·Introduction. Motility and generalities. Chewing and swallowing. Motility and gastric emptying. Intestinal motility. Defecation. ·Gastrointestinal secretion. Salivary discharge Pancreatic secretion. Liver physiology. Portal circulation. Biliary secretion Intestinal secretion ·Digestion and absorption. ·Integrated metabolism: carbohydrates, lipids and proteins. Metabolic adaptations (during absorption, fasting, etc.). Metabolism in tissues.

Practical lessons	Session 1: Conduction Speed Session 2: Endocrine System Session 3: Reaction Speed Session 4: Electroencephalography

Temporary organization of learning:

Block of content	Sessions	Hours
PHYSIOLOGY OF THE ENDOCRINE SYSTEM.	9	18,00
NEUROPHYSIOLOGY	12	24,00
PHYSIOLOGY OF THE DIGESTIVE SYSTEM	5	10,00
Practical lessons	4	8,00

References

·Hall, J.E. (2021) Guyton & Hall Texbook of Medical Physiology. 14th edition. Elsevier.
·Boron, W.F., Boulpaep, E.L. (2012) Medical Physiology. Ed. Elsevier Saunders.
·Koeppen, B.M. (2009) Berne and Levy: Physiology. 6th edition. Elsevier .
·Kandel, E.R. (2013) Principles of Neural Sciences. Mc Graw Hill
·Tortora, G.J., Derrikson, D. (2013). Principles of Anatomy and Physiology. 13th edition. Panamericana.
·Ira Fox, S. (2014). Human Physiology. 13th. Mc Graw Hill.
·Silverthorn, D.U. (2014). Human Physiology: An Integrated Approach . 6th. Panamericana.
·Fernandez-Tresguerres, J.A. (2011) Human Physiology. 4th edition. McGrawHill.
·Thibodeau, G.A., Patton, K.T. (2007). Anatomy and Physiology. 6th edition. Elsevier Mosby.
·Barrett, K.E. (2011) Ganong Medical physiology. 23rd edition. MacGraw Hill.