Information about the course

Degree: Bachelor of Science Degree in Medicine

Faculty: Faculty of Medicine and Health Sciences

Code: 341106 **Name:** Embryology and Anatomy I

Credits: 12,00 ECTS **Year:** 1 **Semester:** 2

Module: Morphology, structure and function of the human body

Subject Matter: Anatomía **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

Recommended knowledge

Not required. Knowledge in biology or natural sciences equivalent to the high school level is recommended.

Learning outcomes

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

R1 - Embryonic development and organogenesis.

Learning outcomes of the specified title

Type of AR: Description

- Knowing the basic principles of human nutrition. Cellular communication. Excitable membranes. Cell cycle. Cell differentiation and proliferation. Gene information, expression and regulation. Inheritance. Embryonic development and organogenesis

- Recognizing with macroscopic, microscopic and imaging techniques the morphology and structure of tissue, organs and systems

- 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 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

- Students have developed the learning skills needed to undertake further studies with a high degree of autonomy

- 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

R10 - Distinguishing the different osteomuscular anatomical structures of the human body, its situation and its function

Learning outcomes of the specified title

Type of AR: Description

- Recognizing with macroscopic, microscopic and imaging techniques the morphology and structure of tissue, organs and systems

Type of AR: Description

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

- 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

- Students have developed the learning skills needed to undertake further studies with a high degree of autonomy

- 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

R11 - Search for bibliographic information from different sources and know how to use it in a critical and constructive way

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

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

- 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

- 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

R12 - Apply general knowledge of anatomy in cadaveric dissection and in working with bone remains

Learning outcomes of the specified title

Type of AR: Description

- Knowing the morphology, structure and function of the skin, blood, circulatory, digestive, locomotive, reproductive, excretor and respiratory systems; endocrine system, immune system and central and peripheral nervous system. Growth, maturation and aging of different devices and systems. Homeostasis. Adaptation to the environment

- Recognizing with macroscopic, microscopic and imaging techniques the morphology and structure of tissue, organs and systems

- 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

R13 - Use dissection instrumentation in practical work, acquiring the ability to handle surgical material

Learning outcomes of the specified title

Type of AR: Description

- Recognizing with macroscopic, microscopic and imaging techniques the morphology and structure of tissue, organs and systems

- 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

R14 - Know the main concepts that integrate anatomical terminology, its fundamentals and clinical and surgical utility

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 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

- Students have developed the learning skills needed to undertake further studies with a high degree of autonomy

- 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

R17 - Using dissection instrumentation in practical work

Learning outcomes of the specified title

Type of AR: Description

- Recognizing with macroscopic, microscopic and imaging techniques the morphology and structure of tissue, organs and systems

R18 - Apply general knowledge of Anatomy

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 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

- 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

R19 - Argument with rational criteria from his work.

Learning outcomes of the specified title

Type of AR: Description

- Recognizing with macroscopic, microscopic and imaging techniques the morphology and structure of tissue, organs and systems

- 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 developed the learning skills needed to undertake further studies with a high degree of autonomy

- 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

R24 - Use different work techniques in the anatomy lab

Learning outcomes of the specified title

Type of AR: Description

- Recognizing with macroscopic, microscopic and imaging techniques the morphology and structure of tissue, organs and systems

- 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

R28 - Seek bibliographic information from different sources and know how to analyze it in a critical and constructive spirit.

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

- Students have developed the learning skills needed to undertake further studies with a high degree of autonomy

R29 - Be able to produce documents on anatomy and work as a team.

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

R3 - Cellular and non cellular structures of bones. Organization and general structure.

Learning outcomes of the specified title

Type of AR: Description

- Knowing the morphology, structure and function of the skin, blood, circulatory, digestive, locomotive, reproductive, excretor and respiratory systems; endocrine system, immune system and central and peripheral nervous system. Growth, maturation and aging of different devices and systems. Homeostasis. Adaptation to the environment

Type of AR: Description

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

- 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

- 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

R30 - Argument with rational criteria from his 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 developed the learning skills needed to undertake further studies with a high degree of autonomy

- 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

R31 - Being able to write an understandable and organized text on various aspects of descriptive and functional neuroanatomy.

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 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

- 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

R4 - Joint types. MENF of different type of joints

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 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

- Students have developed the learning skills needed to undertake further studies with a high degree of autonomy

- 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

R5 - Morfology and function of the different muscles: trunk, head, neck and extremities.

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 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

- Students have developed the learning skills needed to undertake further studies with a high degree of autonomy

- 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

R6 - Vascularization and inervation of locomotive system. NM axes

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 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

- Students have developed the learning skills needed to undertake further studies with a high degree of autonomy

- 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

R7 - Morphology, function and biomechanics of the rachis, pelvic and scapular waist. Extremities. Skull and face

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 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

- Students have developed the learning skills needed to undertake further studies with a high degree of autonomy

- 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 - Know the main events of embryogenesis and fundamental events in the genesis of the various systems and structures to better understand the adult organization of the human body.

Learning outcomes of the specified title

Type of AR: Description

- Recognizing with macroscopic, microscopic and imaging techniques the morphology and structure of tissue, organs and systems

Type of AR: Description

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

- 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

- Students have developed the learning skills needed to undertake further studies with a high degree of autonomy

- 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

R9 - Know the main concepts that integrate anatomical terminology, its fundamentals and clinical and surgical utility

Learning outcomes of the specified title

Type of AR: Description

- Recognizing with macroscopic, microscopic and imaging techniques the morphology and structure of tissue, organs and systems

Type of AR: Description

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

- 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

- Students have developed the learning skills needed to undertake further studies with a high degree of autonomy

- 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, R3, R4, R5, R6, R7, R9, R10, R14	70,00%	Tests
R4, R5, R6, R7, R10, R12	5,00%	Practices
R9, R10, R12, R13, R14, R18	25,00%	Practice exam

Observations

In the period of the 1st call of exams of the first semester there will be an exam of the subject of embryology with writing questions and multiple-choice questions, this exam will be eliminatory with respect to the final exam of the subject (second semester) for those who obtain 5 out of 10.
This exam is optional and has no impact on the final exam/evaluation (beyond that expressed above).The theoretical final exam will be with multiple-choice questions
The practical assessment, worth 25%, is based on attendance at practical sessions, the work done during these sessions, and the completion of the practical exam: Identification of anatomical structures.
This course does not offer the option of single assessment, as it requires the mandatory completion of practical activities with active student participation.
According to article 22 of the Regulations Governing the Evaluation and Grading of UCV Subjects, the mention of "Honors" may be awarded by the professor responsible for the subject to students who have obtained the grade of "Outstanding". The number of mentions of "Matricula de Honor" that can be awarded may not exceed five percent of the students included in the same official record, unless this is less than 20, in which case only one "Matrícula de Honor" may be awarded.
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.

Actividades formativas

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

M1	Masterclass
M3	Virtual simulations
M4	Content presentations by teacher
M5	Knowledges and skills explanation
M8	Group activities supervised by professor

M9 Knowledge acquirance through student interaction and activity

M10 Anatomy dissection practices

M11 Personalised attention by professor

M12 Tests to understand the level of knowledge acquirance and skills

M14 Online activity on e-learning

M15 Personal study

M19 Group work for searching, discussion and information research

IN-CLASS TRAINING ACTIVITIES

ACTVITY	RELATIONSHIP WITH THE COURSE LEARNING OUTCOMES	METHODOLOGY	HOURS	ECTS
Theory class	R1, R3, R4, R5, R6, R7, R8, R9	Masterclass Virtual simulations Content presentations by teacher Knowledges and skills explanation Tests to understand the level of knowledge acquirance and skills	46,00	1,84

Seminar and group practices	R10, R12, R13, R14, R17, R18, R19	Knowledges and skills explanation Group activities supervised by professor Knowledge acquirance through student interaction and activity	34,00	1,36
Practices in small groups	R12, R13, R17, R24	Group activities supervised by professor Anatomy dissection practices Personalised attention by professor	12,00	0,48
Tutoring	R18, R19, R30	Personalised attention by professor	6,20	0,25
Evaluation	R28, R29, R30, R31	Knowledge acquirance through student interaction and activity Tests to understand the level of knowledge acquirance and skills Online activity on e-learning	6,80	0,27
TOTAL			**105,00**	**4,20**

TRAINING ACTIVITIES OF AUTONOMOUS WORK

ACTVITY	RELATIONSHIP WITH THE COURSE LEARNING OUTCOMES	METHODOLOGY	HOURS	ECTS
No attendance	R8, R9, R10, R11, R12, R29, R30, R31	Online activity on e-learning Personal study Group work for searching, discussion and information research	195,00	7,80
TOTAL			**195,00**	**7,80**

Description of contents

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

Theoretical content:

Block of content	Contents
General considerations in human anatomy	Anatomical position and planes, anatomical terminology
Development and embyogenesis	Gametogenesis, fertilization, cleavage, Gastrulation, germinal layers and fates, Neurulation, Somatic and craneofacial morphogenesis, Organogenesis.
Locomotor I	Joint types, generalities, tendons, ligaments
Locomotor II: Anatomy of the trunk. Axial skeleton	Osteoarthrology of the spine, curvatures, vertebral types Skull Rib cage Cephalic, cervical, back, thorax and abdomen myology: Recognition, function, innervation and irrigation Anatomy of the pelvis and perineum
Locomotor III: Anatomy of the upper limb	Osteoarthrology and myology of the upper limb, innervation, function and irrigation / drainage. Shoulder girdle
Locomotor IV: Lower limb	Osteoarthrology and myology of the lower limb and perineum, innervation, function and irrigation/drainage. Pelvic girdle.
Practices	Spine, vertebral morphology, types of vertebra, jointsStudy through models and real pieces of the different elements that make up the skull. Study of topographic anatomy, myology, innervation and irrigation of the back, thorax, neck and face. Study with models and real pieces of the different bone, muscle and neurovascular aspects of the upper minembra Study with models and real pieces of the different aspects of bone, muscle and neurovascul

Temporary organization of learning:

Block of content	Sessions	Hours
General considerations in human anatomy	2	4,00
Development and embyogenesis	12	24,00
Locomotor I	3	5,00
Locomotor II: Anatomy of the trunk. Axial skeleton	12	24,00
Locomotor III: Anatomy of the upper limb	9	18,00
Locomotor IV: Lower limb	9	18,00
Practices	6	12,00

References

Sadler, T.W., Langman. Fundamentos de Embriología Médica. Con Orientación Clínica. Editorial WILLIAMS & WILKINS, 2019
Carlson, B.M., Embriología humana y biología del desarrollo. Editorial Elsevier 4ª ed.2019.
Sobotta. Atlas of Human Anatomy (25 ed.) 2024
Netter. Atlas of Human Anatomyl 8 edition 2023
Rohen, Yokochi, Lütjen-Drecoll. P: Atlas of Human Anatomy. Ed. Elsevier. (9 ed) Ed. 2021
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