

**COURSE DATA****Data Subject**

<b>Code</b>	33001
<b>Name</b>	Human anatomy II
<b>Cycle</b>	Grade
<b>ECTS Credits</b>	6.0
<b>Academic year</b>	2023 - 2024

**Study (s)**

<b>Degree</b>	<b>Center</b>	<b>Acad. Period</b>
1202 - Degree in Physiotherapy	Faculty of Physiotherapy	1 First term

**Subject-matter**

<b>Degree</b>	<b>Subject-matter</b>	<b>Character</b>
1202 - Degree in Physiotherapy	1 - Human anatomy	Basic Training

**Coordination**

<b>Name</b>	<b>Department</b>
GONZALEZ SOLER, EVA MARIA	17 - Human Anatomy and Embryology
PEREZ MOLTO, FCO JOSE	17 - Human Anatomy and Embryology

**SUMMARY**

The general objective of the subject Anatomía Humana II is to provide the student with descriptive and topographical knowledge of the different organs and systems that allow the human body to function. This subject studies the organs that make up the cardio-circulatory, respiratory, digestive, genitourinary and nervous systems, as well as the organs of the senses. The embryonic development of human organisms, the microscopic morphology of the tissues and the macroscopic morphology of the organs, the relationships they establish at topographic level with other structures and the main functional aspects of each organ and system will be worked on. The exhaustive knowledge of the morphological, relational and functional aspects of the different apparatuses and systems of the human body is essential in the training of the physiotherapist, as well as providing a solid and necessary foundation for the integration of the knowledge taught in the rest of the subjects throughout of his training as physiotherapists.



## PREVIOUS KNOWLEDGE

### Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

### Other requirements

Previous knowledge is not required

## OUTCOMES

### 1202 - Degree in Physiotherapy

- Students must be able to apply their knowledge to their work or vocation in a professional manner and have acquired the competences required for the preparation and defence of arguments and for problem solving in their field of study.
- Students must have the ability to gather and interpret relevant data (usually in their field of study) to make judgements that take relevant social, scientific or ethical issues into consideration.
- Students must be able to communicate information, ideas, problems and solutions to both expert and lay audiences.
- Students must have developed the learning skills needed to undertake further study with a high degree of autonomy.
- Know and understand people's morphology, physiology, pathology and behaviour under health and sickness in the natural and social environments
- Respect fundamental rights and equality between men and women.
- Recognise diversity, multiculturalism, democratic values and peace culture.
- Recognise equal opportunity and accessibility for people with disability.
- Work in teams.
- Have the ability to organise and plan work.
- Know the human anatomy, especially the dynamic relationship among morphology, structure and function.
- Know the structural changes that may arise as a consequence of the physiotherapy application.
- Know the morphology, structure and function of the central nervous system, pyramidal and extrapyramidal tracts and their locomotive effects in order to know how to apply the appropriate physiotherapy .
- Know the morphology, structure and function of the senses, and the peripheral, sensitive and motor systems in order to be able to apply them in physiotherapy.



- Know the visceral system of the abdominal and thoracic cavities, their content, distribution and function related to the organic homeostasis in order to apply them in physiotherapy.

## LEARNING OUTCOMES

1. That the students be able to identify and describe the microscopic structure of the main tissues that make up the human body.
2. That the students be able to identify and describe the main stages of the embryonic development of the human organism.
3. That the students be able to identify and describe the elements that make up the sense organs and their driving directions.
4. That the students be able to identify and describe the elements that make up the nervous system.
5. That the students be able to identify and describe the elements that make up the cardiocirculatory, respiratory, digestive and genitourinary systems, as well as their topographic and main functions.
6. That the students be able to identify the different structures and systems studied by means of radiological image (Rx, TACO, RNM,...)

## DESCRIPTION OF CONTENTS

### 1. EMBRYOLOGY AND HISTOLOGY

- 1-Anatomy: concept, historical memory. Organization of the human body. Concept of organs, organ systems. Life cycle.
- 2-Tissue: concept, classification and types. Epithelial tissue. Glandular tissue.
- 3-Supporting tissue: connective, cartilage and bone tissue. Muscle tissue.
- 4-Nervous tissue.
- 5-Embryology. Germ phase; morula, blastula, gastrula (embryonic leaves) and neurula.
- 6-Embryology. Implantation. Placenta and fetal annexes.
- 7-Embryology. Development of the nervous system.
- 8-Embryology. Somites and derivatives. Limb formation.

### 2. NERVOUS SYSTEM

- 9-Structural organization. Central and peripheral NS. Autonomic nervous system: sympathetic and parasympathetic.
- 10-Central nervous system: Study of the brain and spinal cord.
- 11-Descriptive anatomy of the spinal cord: structure of the gray matter and white matter.
- 12-Peripheral nervous system: Nerve fiber. Spinal and cranial nerves.
- 13-Descriptive anatomy of the Peripheral Nervous System: nerve roots, spinal nerves. Nervous plexus. spinal reflex arc.
- 14-Descriptive Anatomy of the Trunk: Motor, sensitive and vegetative nuclei. Systematization of the cranial nerves of the trunk.
- 15-Descriptive Anatomy of the Trunk: Nuclei involved in motor control: Substantia Nigra, Red Nucleus,



Vestibular Nuclei and Bridge Nuclei.

16-Descriptive anatomy of the cerebellum. Crust and deep cores. function of the cerebellum.

17-Descriptive anatomy of the Diencephalon: anatomical and functional divisions. Thalamus, motor and sensory nuclear systematization.

18-Descriptive anatomy of the brain: Motor and sensitive areas. Language Areas.

19-Descriptive anatomy of the brain: Subcortical structures involved in motor control. basal nuclei. Function of the basal ganglia.

20-Structure of the telencephalic white matter: Association, projection and commissural pathways.

21-Functional anatomy of the SN. Pyramidal and extrapyramidal motor pathways. Final pathway of action on the lower motor neuron.

22-Somatosensory pathways.

23-Organs of sensory reception: touch.

24-Organs of sensory reception: sight.

25-Organs of sensory reception: hearing, hearing and balance.

26-Meningeal covers and circulation of cerebrospinal fluid.

27-Irrigation of the central nervous system.

28-Neuroendocrine system.

### **3. CARDIOVASCULAR SYSTEM**

29-External and internal morphology of the heart: pericardium, myocardium. Valvular Endocardium System.

30-Heart and great vessels. Sigmoid valves. Coronary Circulation.

31-Nerve conduction system and heart. Pulmonary Circulation.

32-Artery and pulmonary veins.

33-Cephalic circulation. Somatic Circulation.

34-Parietal and visceral branches of the thoracic and abdominal aorta. Source of irrigation large trunks of the extremities.

35-Lymphatic System: concept, systematic and anatomical function. Immune function of the spleen and thymus.

### **4. RESPIRATORY SYSTEM**

36-Upper respiratory tract: nasal cavity, paranasal sinuses. Structure and function of the larynx.

37-Lower respiratory tract: from main bronchus to alveolus. Macroscopic structure of the lungs. Functional unit of the lung.

### **5. DIGESTIVE SYSTEM**

38-Oral cavity: Tooth system. Pharynx, esophagus and stomach.

39-Intestinal system.

40-Glands Digestive System: Oral cavity.

41-Irrigation: mesenteric artery and its branches. Portal Circulation.

**6. SISTEMA UROGENITAL**

42-Kidney and urinary tract. Functional unit of the kidney.

43-Male genital system.

44-Female genital system.

**7. PRACTICE SCHEDULE. 15 HOURS**

1-Embryology.

2-Nervous System (I): Spinal cord: external and internal structure. Trunk and cranial nerves.

3-Nervous System (II): Cerebellum and diencephalon.

4-Nervous System (III): Cerebral hemispheres, subcortical structures and cortical/cortical areas.

5-Nervous System (IV): Sense organs. Vascularization of the SN, meningeal coverings and CSF circulation.

6-Thorax (I) Mediastinum. Cardiocirculatory System: External and internal morphology of the heart. Great arteries and veins.

7-Thorax (II): Respiratory System. Larynx, airways and lungs.

8-Abdomen: Anatomoclinical grid. Digestive system.

9-Urogenital System: Kidney and urinary tract. Female sexual organs. Male sexual organs. External and internal genitalia.

**WORKLOAD**

ACTIVITY	Hours	% To be attended
Theory classes	45,00	100
Laboratory practices	15,00	100
Development of group work	40,00	0
Study and independent work	30,00	0
Preparation of evaluation activities	20,00	0
<b>TOTAL</b>	<b>150,00</b>	

**TEACHING METHODOLOGY**

Interactive teacher-student theory class.

The gender perspective and the sustainable development goals (SDGs) will be incorporated into teaching, whenever possible.

Interactive seminars on visceral and nervous system imaging, clinical anatomy or any other that teacher considers interesting for the development of students.





Practical classes on cadaver, anatomical models and in vivo anatomical imaging. Attendance at practices is mandatory. Due to the non-refundable nature of practical classes, unjustified absence from more than 20% of the practical sessions will mean the impossibility of passing the subject in either of the 2 calls.

## EVALUATION

It will consist of a theoretical test, a practical test and continuous assessment activities. It is an essential requirement to pass each of the parts to average the final grade.

- **Theoretical part:** Its value corresponds to 70% of the final evaluation. It consists of:
  - *Theoretical test:* Objective test consisting of a battery of 50 multiple-choice questions with 4 possible answers. Correct questions will have a value of 1 point, and incorrect questions subtract 0.25 points (for every 4 questions answered incorrectly, 1 correct answer will be subtracted). It is necessary to obtain a grade of 5 out of 10 to pass this theory test. The content of the test will be the same for all groups of the subject. Its value is 65% of the final grade.
  - *Continuous assessment activities:* To be specified by the teaching staff. Its value will be 5% of the final grade.
- **Practical part:** It has a value of 30% of the final evaluation. It consists of:
  - *Practical test:* Questions will be asked about all the materials and concepts studied during the practices. Its value is 25% of the final grade. It is necessary to obtain a grade of 5 out of 10 to pass this test.
  - *Continuous assessment activities:* Preparation, elaboration, presentation and delivery of a group expository work (as a monitor), in which the student guides the classmates in a stipulated practice. It will be carried out in the presence of teachers. Its value will be 5% of the final grade. It is necessary to obtain a grade of 5 out of 10 to pass this test.
- **Attendance to Practices:** Attendance to practices is compulsory. Due to the non-recoverable nature of the practical classes, unjustified absence in addition to 20% of the practices will mean the impossibility of passing the subject in any of the 2 calls.

## REFERENCES

### Basic

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#### **Additional**

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- NIELSEN M, MILLER S. (2012) Atles d'anatomía humana (1ª edición). Editorial Panamericana.
- PUELLES LÓPEZ. (2008) Neuroanatomía. Editorial Panamericana.
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- Atlas de Anatomía Humana interactivo 3D PRIMAL Pictures. Acceso gratuito desde la UV (<http://www.anatomy.tv>).