
 <b>EUI-SANT PAU</b> Centre adscrit a la <b>URB</b>	<b>GRAU INFERMERIA - EUI SANT PAU</b>	 <b>HOSPITAL DE LA SANTA CREU I SANT PAU</b> <small>FUNDACIÓ DE GESTIÓ SANITÀRIA UNIVERSITAT AUTÒNOMA DE BARCELONA</small>
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<b>"Structure of the Human Body"</b>	<b>2022/2023</b>
Code: 106096	
Credits ECTS: 6	

Degree	Type	Course	Semester
2500891 Nursing	Basic Training	1	1

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<p><b>Prerequisites</b></p> <p>There are no official prerequisites</p>
<p><b>Contextualization and objectives</b></p> <p>This subject is part of the Basic Sciences training module, Human Anatomy subject and is scheduled for the first semester of the Bachelor's Nursing degree.</p> <p>Caring for healthy and sick people defines us as a profession. In order to provide quality care, it is necessary to have an in-depth knowledge of the human body.</p> <p>The purpose of this course is to introduce students to the different elements involved in the structure of the human body, both at the internal and microscopic level of cytology, genetics and histology, and at the external and macroscopic level, such as the most important anatomical characteristics of the systems specific to men and women throughout the different stages of the life cycle.</p>

**Learning objectives of the subject:**

1. Achieve the knowledge of cell biology and genetics that allows understanding the organization of the human cell.
2. Achieving knowledge of anatomy, embryology and histology that allows understand the structural organization of the human body in situations of normality.
3. Identify the anatomical structures and relationships of the different organs of the human body in normal situations.

**Learning competences and outcomes**

Competences	Learning outcomes
<b>SPECIFIC</b>	
E01. Provide technical and professional health care appropriate to the health needs of the people they serve, according to the state of development of the scientific knowledge of each moment and with quality and safety levels set out in the applicable legal and ethical standards.	E01.01 Identify the structure of the human body.  E01.02 Describe the main characteristics, differentials and components that shape the structure of the human body.
<b>GENERALS / BASICS</b>	
G04. Act in the field of self-knowledge by assessing gender/gender inequalities.	G04.03 Analyse gender differences and gender inequalities in etiology, anatomy, physiology, pathologies, differential diagnosis, therapeutic options, pharmacological response, prognosis and nurse care.
B01 Have acquired advanced knowledge and demonstrated an understanding of the theoretical and practical aspects and methodology of work in their field of study in a depth that reaches the forefront of knowledge depth that reaches the cutting edge of knowledge.	

## Contents

### MODULE 1. Basic anatomical structures

#### GLOBAL STRUCTURE OF THE HUMAN BODY

- Introduction to the anatomy and application of the anatomical terminology.
- Describe the levels of the organization of the human body.
- Cite the interactions between anatomy and physiology.
- Describe the parts of the human body and anatomical positions.
- Describe the planes and axes of the human body.

#### CELL BIOLOGY

- Identify the cell: types and functions.
- Know the parts of the cell: Membranes. Cytoplasm. Nucleus.
- Identify cellular activities: Metabolism and transference through membranes.
- Know the cell cycle.
- Describe the mechanisms of cell division: Mitosis, Meiosis.
- Identify cell death: Necrosis and apoptosis.

#### HUMAN GENETICS

- Introduction to Genetics.
- Know the chemical bases of molecular genetics: Disposition. DNA Replication and Transcription and RNA Synthesis.
- Identify the genetic code: Message translation. Protein synthesis.
- Know the regulation of genes.
- Describe the molecular analysis of the Human Genome.
- Identify chromosomes: Karyotype.
- Describe the objectives of meiosis and its phases: Recombination.
- Describe Ovocytogenesis and Spermatogenesis.
- Remember the general concepts of inheritance applied in the human species.
- Describe the possibilities of appearance and the genetic risk of autosomal inheritance: both dominant and recessive.
- Describe the possibilities of appearance and the genetic risk of sex-linked inheritance: linked to the X chromosome. Linked to the Y chromosome.
- Genetic advice.
- Identify mutations.
- Describe chromosomal anomalies in humans: numerical and structural.
- Correlate chromosomal abnormalities and carcinogenesis.

#### HISTOLOGY

- Know the embryonic origins of tissues.
- Classify human tissue.
- Name and know the epithelial tissue and glands. Classify the glands.
- Name and know Connective tissue: lax, supportive, (cartilage and bone) and hematopoietic.
- Name and know Muscle tissue: smooth and fluted.
- Name and know Nerve tissue.

- Name and know the basic tissues of the skin (dermis and epidermis) and the annexes of the skin.

## **MODULE 2. Anatomical structures of the systems that make up the human body**

### **OSTEOMUSCULAR SYSTEM**

- Know the structure of the locomotive system.
- Name and know the structure and classification of the different types of bones.
- Identify and name the anatomical components: bones, muscles and joints.
- Describe the microscopic structure and histology of bones and joints.
- Classify anatomical and functional joints.
- Classify muscles.
- Describe the histology of the striatum muscle.
- Identify and name the head: bones, muscles, joints of the skull, and the face.
- Identify and name the rachis: bones, muscles, joints of the spine.
- Identify and name the chest: bones, muscles and joints.
- Identify and name the upper limb: bones, muscles and joints of the scapular waist, elbow, wrist and hand.
- Identify and name the lower limb: bones, muscles and joints of the pelvic waist, knee, ankle and foot.

### **NERVOUS SYSTEM**

- Identify the components of nerve tissue.
- Classify neurons: shapes and types.
- Classify the nervous system.
- Identify the brain: location and relationships.
- Identify and name cranial meninge, the spaces they delimit and the circulation of cerebrospinal fluid.
- Identify and name the parts of the brain: situation and relationships.
- Identify and name the parts of the cerebellum: situation and relationships.
- Identify and name the parts of the diencephalon: thalamus, hypothalamus. Situation and relationships.
- Identify and name the parts of the brain stem: mesencephalon, bulge, spinal bulb.
- Describe the situation and path of the cranial pairs.
- Identify and name the parts of the spinal cord: location.
- Identify and describe the path of the spinal nerves and the plexus they form.
- Describe the organization of the autonomic nervous system: sympathetic and parasympathetic. Situation and relationships.
- Describe the type of synapses between pre-ganglion and post-ganglion fibers.
- Describe the sense of vision and identify its components: eyeball, lenses, extrinsic and intrinsic eye muscle, protective accessory elements.
- Describe the sense of hearing and balance: external, middle and inner ear.
- Describe the sense of taste: location of taste.
- Describe the sense of smell: location of smell.

## ENDOCRINE SYSTEM

- Identify the location of the endocrine system.
- Describe the endocrine glands: location, relationships and irrigation.
- Describe the pituitary gland: situation and relationships. Adenohypophysis. Hypothalamus axis – pituitary. Neurohypophysis.
- Identify the thyroid gland: situation and relationships.
- Identify the parathyroid gland: situation and relationships.
- Identify the adrenal gland: situation, relationship and parts.
- Identify the pancreas as an endocrine gland: situation and relationship.

## URINARY SYSTEM

- Know the general organization of the urinary tract.
- Identify and locate the different parts of the urinary tract and their relationships: kidney, ureter, urinary bladder and urethra.
- Relate the urinary tract to the genital and digestive system.
- Describe the differences between the female and male urinary tract.
- Describe the histological structure of the urinary tract.
- Identify the components of the nephron: glomeruli, Bowmann capsule, contoured tubules, Henle handle and collector tubules.
- Describe the vascularity of nephron.

## DIGESTIVE SYSTEM

- Know the organization of the digestive System.
- Identify and locate each part of the digestive tract: mouth, pharynx, esophagus, stomach, small intestine, large intestine, sigma and rectum.
- Identify and locate the exocrine pancreas, liver, bile bladder.
- Relate the different parts of the digestive system to each other and to the respiratory system.
- Know the histology of the digestive system.

## RESPIRATORY SYSTEM

- Know the organization of the respiratory system.
- Know the microscopic and histological structure of the respiratory system.
- Identify and locate the different structures of the upper respiratory system: nose, pharynx, larynx and trachea.
- Identify and locate the different structures of the intrathoracic respiratory system: bronchial, bronchioles, alveoli and pleura.
- Relate the different parts of the respiratory system to the digestive and cardiovascular system.
- Know the irrigation and innervation of the lungs.
- Describe the muscles involved in respiratory mechanics.

## CARDIOCIRCULATORY SYSTEM

- Know the organization of the cardiocirculatory apparatus.
- Describe the histology of the three layers of the heart: endocardium, myocardium and pericardium.
- Identify the anatomy of the heart: cavities and valves, conduction tissue and coronary arteries.
- Describe the two circuits of blood circulation: Systemic and Pulmonary.
- Identify the main arteries and veins of the body.
- Know microcirculation. Structure of the capillaries.
- Describe the anatomy of fetal circulation.

## DEFENSE SYSTEMS

- Know the composition of the blood: plasma, blood cells, platelets and leukocytes.
- Describe the structure of erythrocytes and their life cycle.
- Describe blood groups and Rh system.
- Describe platelets.
- Describe white blood cells or leukocytes.
- Describe hematopoietic tissues: myeloid, lymphatic.
- Explain the concept of immunity.
- Identify the different types of immunity: natural immunity. Acquired immunity: humoral and cellular.
- Differentiate lymphocyte types to acquired immunity: T lymphocytes and B lymphocytes.
- Know and classify antigens and antibodies.
- Differentiate vaccination and passive immunity.

## REPRODUCTOR SYSTEM

- Know the general organization of the reproductive system.
- Identify and locate the structures of the female reproductive system: ovary, fallopian tubes, uterus, vagina, external genitalia.
- Relate the genital structures to the organs of the peritoneal cavity and pelvis.
- Know the structure and relationships of the mammary gland.
- Identify the location of the structures of the male reproductive system: testicle, epididymis, deferential duct, seminales vesicles, prostate, penis and scrotum.

## EMBRYOLOGY

- Know the development of the embryo and the fetus.
- Know the phenomena of fertilization and segmentation.
- Cite the phenomena that appear during the embryogenesis period. Gastrulation. Embryonic disc.
- Appearance of the trilaminar disc. Appearance of ectoblastic, mesoblast and endoblast.
- Explain the concept of organogenesis. Explain changes during fetus-genesis.
- Describe the umbilical cord and placenta.

## Methodology

The methodological approach of the subject places the student at the centre of the teaching-learning process. The student has to be active and autonomous throughout the learning process, while the teacher provides with the necessary information and resources for the learning.

### ***Directed Activity:***

The course is face-to-face with non-compulsory attendance. The teaching methodology used is the theoretical lecture expository, participative and group lecture developing active listening and exposition. Classroom practice with discussion and group or individual exercises and activities.

### ***Supervised Activity:***

Different articles and documents are worked on. The classes are a support to the student's independent study of the recommended bibliography. Tutorials can be face-to-face or online. Depending on the time required for the development of the course, the tutorials will be integrated into the theoretical classes and classroom practices. Any doubts that students may have in relation to the course can be solved at any time, preferably in any type of class, or by e-mail to the lecturer responsible for the subject that generates the doubt, if it is not possible to access in person.

## Activities

Activity	Hours	ECTS	Learning Outcomes
<b>Type: Directed</b> . Theoretical classes . Classroom Practices	52,5	2,10	E01.01, E01.02, B01, G04.03
<b>Type: Supervised</b> . Tutorials:	1	0,02	
<b>Type: Autonomous</b> . Bibliographic consultations:	82,5	3,30	

## Assessment

The student has only one call per academic year to pass the subject.

Academic progression and the overcoming of the subject is assessed by a continuous and formative evaluation, through two test-type tests of 40 questions and a written proof of concept that will be carried out at the same time as the second continuous evaluation. Each test will have a weight of 47.5%, while the proof-of-concept will have a weight of 5%.

In the multiple choice tests, wrong answer penalise according to the following formula:  $X = \frac{\text{successes} - (\text{errors}/n-1)}{10}$ , with  $n$  being the number of answer options. Its value will be between 0 and 10.

Proof of concept will be assessed from 0 to 10.

The final grade of the course is obtained from weighted average of the notes obtained in the two tests type test (from a 5 in each of them) and the proof of concept.

Requirements for the weighted average:

1. - A minimum mark of 5 is required in each of the two multiple-choice tests. The mark for the concept test may be lower than 5.
2. - The student must have presented at a minimum of 66.6% of the total weight assessment tests (this requires that the student submits both test evaluations).

### Qualification:

- 0 to 4, 9: Fail
- 5, 0 to 6, 9: Pass
- 7, 0 to 8, 9: Satisfactory
- 9, 0 to 10: Excellent (in the event that the student has obtained a grade equal to or greater than 9 may, at the discretion of the teacher, be eligible for an honorary degree).

### Recovery Activity

A recovery activity is proposed for those students who have been previously assessed in all the activities, the weight of which is equivalent to a minimum of 2/3 of the total qualification of the course and who have obtained a final grade of more than 3.5 and less than 5 out of 10.

This test will consist of an evaluation activity depending on the part not passed. That is to say, if the type test not passed is the first one, it will be assessed only on that part. If it is the second, only the second part must be assessed. In the case of both failed exams, all of them must be assessed. There will be no make-up test for the concept test. In the event that the student passes the recovery test corresponding to the failed part (mark of 5 or more), their mark for the test will be recorded as a 5. This mark will be the one that will be combined with the other test (if passed) and the concept test, in order to obtain the final grade for the course.



The recovery tests will be determined by the teacher, usually in the form of a multiple-choice test, which will include all the contents of the failed part.

Once the course has been passed, it cannot be assessed again.

**No evaluable:**

It will be considered non-assessable when the student has not participated in any of the continuous assessment activities.

**Review of the final mark:**

Once the final grade has been published, students can request a review within the established period. Requests for revision outside this period will not be accepted.

**Assessment Activities**

Activity	Weight	Hours	ECTS	Learning Outcomes
Test test 1	47,5%			
Test test 2	47.5%	7,50	0,20	E01.01, E01.02, B01, G04.03
Proof of concepts	5%			

*In the subject Function II, a workshop of laboratory internships is held in groups of 10-15 students. This workshop integrates the laboratory practices of the subjects Human Body Structure, Human Body Function I and Human Body Function II.*

**BIBLIOGRAPHY**

**ESTRUCTURA Y FUNCIÓN DEL CUERPO HUMANO**

*Author* ESCUREDO B, SANCHEZ J.M, BORRAS J, SERRAT J.  
*Edition* 2ª edition. Mac Graw Hill Interamericana de España 2002  
*ISBN* 9788448604684

**INTRODUCCIÓN AL CUERPO HUMANO**

*Author* Tortora, Derrickson  
*Edition* Editorial Médica Panamericana, 2008  
*ISBN* 9789687988993