

**Structure of the Human Body**

Code: 106096  
ECTS Credits: 6

Degree	Type	Year	Semester
2500891 Nursing	FB	1	1

The proposed teaching and assessment methodology that appear in the guide may be subject to changes as a result of the restrictions to face-to-face class attendance imposed by the health authorities.

### Contact

Name: Santiago Rojas Codina  
Email: Santiago.Rojas@uab.cat

### Use of Languages

Principal working language: catalan (cat)  
Some groups entirely in English: No  
Some groups entirely in Catalan: Yes  
Some groups entirely in Spanish: No

### Teachers

Edgar Buloz Osorio  
Jordi Gascón Bayarri  
Beatriz Almolda Ardid

### Prerequisites

As a subject of the first semester of the first year of the Nursing Degree, there are no special requirements.

### Objectives and Contextualisation

To acquire knowledge about anatomy and histology, that allow us to understand the structural organization of the human body.

To learn in a weighted way the characteristics of the human structure, which are applied in nursing practice.

To achieve the basic skills that allow the identification of the most relevant anatomical structures in nursing practice.

### Competences

- Generate innovative and competitive proposals for research and professional activities.
- Offer technical and professional health care and that this adequate for the health needs of the person being attended, in accordance with the current state of scientific knowledge at any time and levels of quality and safety established under the applicable legal and deontological rules.
- Students must have and understand knowledge of an area of study built on the basis of general secondary education, and while it relies on some advanced textbooks it also includes some aspects coming from the forefront of its field of study.

## Learning Outcomes

1. Analyse differences by sex and gender inequality in ethiology, anatomy, physiology. Pathologies, differential diagnosis, therapeutic options, pharmacological response, prognosis and nursing care.
2. Identify the composition and organization that sets the structure of the human body.
3. Integrate knowledge of the structure of organs and systems in the human body with their application to the nursing diagnoses and care plans.
4. Students must have and understand knowledge of an area of study built on the basis of general secondary education, and while it relies on some advanced textbooks it also includes some aspects coming from the forefront of its field of study.

## Content

The subject is organized in two modules, one of Anatomy and one of Histology.

### MODULE: ANATOMY

#### Contents:

1. Generalities and locomotor apparatus
  - 1.1 General Osteology. General arthrology. General myology
  - 1.2 Axial and appendicular skeleton.
  - 1.3 Muscles of the head and trunk
  - 1.5 Muscles of the upper extremity
  - 1.6 Muscles of the lower extremity
2. Cardiovascular system
  - 2.1 Introduction to the study of the cardiovascular system
  - 2.2 Heart
    - 2.2.1 Location of the heart. Mediastinum. Pericardium: fibrous and serous pericardium. Pericardial cavity. Position of the heart
    - 2.2.3 Morphology of the heart: Right and left atria, right and left ventricles, heart valves
    - 2.2.4 Coronary circulation
    - 2.2.5 Conduction system
  - 2.3 Minor circulation: Pulmonary artery and pulmonary veins.
  - 2.4 Major circulation
    - 2.4.1 Arteries of major circulation: Aorta and its branches, arteries of the neck and head, arteries of the upper limb, arteries of the thorax, arteries of the abdomen, arteries of the lower limb.
    - 2.4.2 Veins of major circulation: Superior cava system, lower cava system, portal vein system
  - 2.5 Lymphatic system
3. Respiratory system
  - 3.1 Organization of the respiratory system

3.2 Nose: Nasal pyramid and nasal cavity

3.3 Pharynx

3.4 Larynx, trachea and main bronchi

3.5 Associated endocrine structures: thyroid gland and parathyroid glands

3.6 Lungs and pleura

4. Nervous system

4.1 General organization

4.2 Meninges and cerebrospinal fluid

4.3 Encephalon structure: Brain cortex, subcortical white matter, basal ganglia, limbic system, thalamus, hypothalamus, mesencephalon, pons, medulla oblongata, cerebellum.

4.4 Associated endocrine structures: pituitary and pineal gland

4.5 Cranial nerves

4.6 Spinal cord and spinal nerves

4.7 Autonomous nervous system. Sympathetic and parasympathetic divisions.

4.8 Sense organs

4.8.1 Audition and equilibrium organs. External, middle and inner ear.

4.8.2 Vision organ. Eyeball and its annexes.

5. Digestive system

5.1 Organization of the digestive system

5.2 Supradiaphragmatic digestive system: Mouth, pharynx, esophagus, annex glands (parotid, submandibular and sublingual glands).

5.3 Abdominopelvic cavity: Peritoneal cavity and extraperitoneal spaces.

5.4 Infradiaphragmatic digestive system: Stomach, small intestine (duodenum, jejunum and ileum). Large intestine (vermiform appendix, caecum, ascending colon, transverse colon, descending colon, sigmoid colon and rectum).

5.5 Annex glands: Liver and pancreas. Spleen as associated non-digestive viscera.

6. Urinary system

6.1 Organization of the urinary system

6.2 Kidney: Location. External structure Internal organization (cortex and medulla). Vascularization

6.3 Associated endocrine structures: adrenal glands

6.4 Urinary tract: Renal calyces (minor and major), renal pelvis, ureter, urinary bladder and urethra.

7. Reproductive system

7.1 Male reproductive system.

7.1.1. Scrotum and testicles.

7.1.2. Epididymis and deferent duct.

7.1.3. Annex glands: seminal vesicles and ejaculatory ducts, prostate and bulbourethral glands.

7.1.4. Penis. Male urethra.

7.2 Female reproductive system

7.2.1. Ovaries

7.2.2. Uterine tubes and uterus (fundus, body and neck). Wide ligament. Round ligament. Vagina.

7.2.3. External genital organs (vulva). Female urethra.

### Practices:

In brackets is the labeling with which is announced in the calendar of the first semester.

1 ECH-PLAB-S1. Anatomy of the locomotor system. Anatomy of the upper and lowerlimbs. Anatomy of the trunk and neck. Anatomy of the head. Study of dissected cadaveric material and bones.

2 ECH-PLAB-S2. Cardiovascular and respiratory systems. Heart. Arterial system. Venous system. Respiratory tract. Lungs and pleura. Study of dissected cadaveric material and didactic models.

3 ECH-PLAB-S3. Anatomy of the nervous system and sense organs. Anatomy of the spinal cord and spinal nerves. Anatomy of the brain and cranial nerves. Anatomy of the meninges and circulation of cerebrospinal fluid. Anatomy of the eyeball and its annexes. Anatomy of the external, middle and inner ear. Anatomy of the pituitary gland and pineal gland. Study of dissected cadaveric material and didactic models.

4 ECH-PLAB-S4. Digestive system. Supradiaphragmatic digestive tract and associated structures (salivary glands, tongue and teeth). Abdominal cavity. Infradiaphragmatic digestive tract. Adnexal glands (liver and pancreas) and spleen. Urinary tract. Kidney and urinary tract. Male reproductive system. Female reproductive system. Study of dissected cadaveric material and didactic models.

## MODULE: HISTOLOGY AND ORGANOGRAPHY

### Contents:

1 Introduction to histology

1.1 Concept of tissue and organ

1.2 Histological techniques for the study of tissues and organs

1.3 Classification of tissues

2 Epithelial tissue

2.1 Epithelial Tissue: Coating and glandular

2.2 Specializations of the epithelial cell

2.3 Classification of glands: exocrine and endocrine

2.4 Renewal of epithelial cells

3 Connective tissues

3.1 Constituent elements: cells, fibers and matrix

- 3.2 Classification of connective tissues: conjunctive, cartilage, bone, adipose and blood
- 3.3 Repair and adaptation of connective tissues
- 4 Muscle tissue
  - 4.1 Classification of muscle tissue: smooth, skeletal and cardiac muscle
  - 4.2 Repair and renewal of muscle tissue
- 5 Nervous tissue
  - 5.1 Composition of nervous tissue: neurons and glia
  - 5.2 Gray matter and white matter
  - 5.3 Response of nervous tissue to aggression
- 6 Cardiovascular system
  - 6.1 Generalities of the cardiovascular system
  - 6.2 Heart: structure, fibrous skeleton and conduction system
  - 6.3 Characteristics of the vascular wall: arteries, veins and capillaries
  - 6.4 Concept of microcirculation
  - 6.5 General characteristics of the lymphatic vessel wall
- 7 Respiratory system
  - 7.1 Generalities of the respiratory system
  - 7.2 Nasal cavities: respiratory region and olfactory region
  - 7.3 Pharynx and larynx
  - 7.4 Tracheal wall
  - 7.5 Differences in the wall of bronchi and bronchioles
  - 7.6 Alveolar wall and gas exchange
- 8 Nervous system
  - 8.1 Organization of the nervous system: central and peripheral
  - 8.2 Organization of the autonomic nervous system: sympathetic and parasympathetic
  - 8.3 Meninx and choroid plexus
  - 8.4 Regeneration of the nervous system
- 9 Tegumentary system
  - 9.1 Structure of the skin: skin and epidermal structures
  - 9.2 Skin layers: epidermis, dermis and hypodermis
  - 9.3 Epidermis: cell types and keratinization process
  - 9.4 Epidermal barrier

9.5 Functional differences of epidermal cells according to skin color

9.6 Cutaneous annexes: hair follicles, sebaceous glands, eccrine glands, apocrine glands and nails

9.7 Sensory cutaneous nerve receptors

9.8 Skin repair process

## Methodology

DIRECTED ACTIVITIES:

### Theoretical classes of Anatomy:

They are intended to provide the basic information on the anatomy of the human body, as well as the tools for its study. They will consist of a total of 28 hours of class.

### Practices of Anatomy:

Students work in the Dissection Room using properly prepared cadaver material and anatomical models. This activity is intended to provide skills in the identification and location of anatomical structures as well as to understand the anatomical basis of the most common techniques of nursing practice. Each session will last for 2 hours and there will be a total of 4 sessions.

### Theoretical and practical activities of the Histology:

They are intended to provide knowledge of the microscopic structure of tissues and organs of the human body. These are integrated activities where basic theoretical training and practical verification of preparations is done in the same session for each topic.

Additional note: due to the exceptional situation caused by the Covid-19, there may be changes in the teaching methodology during the course depending on the evolution of health conditions.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

## Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Classroom practices	17	0.68	2, 3, 4
Laboratory practices	8	0.32	2, 3
Theory	28	1.12	1, 2, 3, 4
Type: Autonomous			
Personal study	91	3.64	1, 2, 3, 4

## Assessment

1 Continuous evaluation

Two partial evaluations are scheduled. Each includes a test exam (anatomy and histology) and a practical exam (anatomy)

#### 1.1 Contents of the evaluations:

##### First partial evaluation:

Test exam (TA1 + TH1): Anatomy (Topics 1-3) + Histology (Topics 1-5)

Practical exam (PA1): Practices 1 and 2

##### Second partial evaluation:

Test exam (TA2 + TH2): Anatomy (Topics 4-7) + Histology (Topics 6-9)

Practical exam (PA2): Practices 3 and 4.

#### 1.2 Characteristics of the tests:

Tests exams: Each test-type exam will consist of 50 questions (37 questions from the Anatomy module and 13 questions from the Histology module). Each question will have 4 possible options and only one valid answer. Each incorrect answer will have a penalty of 1/3 of a point. Blank answers will not penalize.

Practical exams: In these exams, the student must name and identify anatomical structures. In each of the practical exams there will be 20 structures to identify. Incorrect answers do not penalize. Neither do the blank answers.

#### 1.3. Weight of each exam within each partial evaluation (scale 0-10):

First partial: Test-type exam (TA1 + TH1) 7.5 points; Practical exam (PA1) 2.5 points

Second partial: Test-type exam (TA2 + TH2) 7.5 points; Practical exam (PA2) 2.5 points

#### 1.4 Weight of each exam within the final qualification (scale 0-10):

First test exam (TA1 + TH1) 3.75 points; First practical exam (PA1) 1.25; Second test exam 3.75 points; Second practical exam (PA2) 1.25 points.

#### 1.5. Calculation of the final qualification and sufficiency criteria:

To calculate the qualification of the first partial evaluation, the following formulas will be applied:

First partial qualification = (Test examscore TA1 + TH1) x 0.75 + (Practical exam score PA1) x 0.25

Second partial qualification = (Test exam score TA2+TH2) x 0.75 + (Practical exam score PA2) x 0.25

The minimum score to obtain the sufficiency in each partial evaluation is 5 (scale 0-10)

The following formula will be applied to calculate the final qualification of the subject:

Final qualification = (TA1 + TH1 test exam score) x 0.375 + (PA1 practical exam score) x 0.125 + (TA2 + TH2 test exam score) x 0.375 + (PA2 practical exam score) x 0.125

The minimum score for the final qualification to obtain the sufficiency is 5 (scale 0-10). The sufficiency of the subject can be achieved despite having a partial evaluation with a score of less than 5 if this is higher than 4. If the score in one of the partial evaluations is less than 4, it will be considered that score of sufficiency has not been reached whatever is the result of the calculation of the final score. In these case a final score of 4 will be set by default.

## 2 Recovery test / score improvement

Students who have not achieved the sufficiency of the subject during the course, or who have obtained it but want to improve their score, can be re-examined in those test or practical exams that they decide. The characteristics of the partial evaluation exams and the recovery exam are the same. The score obtained in the recovery / improvement exams will replace the obtained in the partial evaluations as if it is superior to this one. Otherwise, the score obtained in first place will be maintained.

### 3. Synthesis test

After the second enrollment students can choose to take a final exam (which is not a test) instead of the recovery test. This option must be requested to the coordinator of the subject 7 days before the recovery test.

### 4. Additional considerations

From the second enrollment, students can choose to keep the scores obtained in previous years in those exams that have achieved the sufficiency (5). However, due to the reorganization of the subject in the 2020-21 academic year, it will only be possible to maintain the qualifications of the anatomy partials (PA1 and PA2) obtained before 2020-21.

Non-evaluable: The student will be considered non-evaluable if the weight of the conducted tests represents less than 40% of the total evaluable contents of the subject.

Additional note: due to the exceptional situation caused by the Covid-19, there may be changes in the evaluation procedure during the course depending on the evolution of health conditions.

## Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Assessment using objective tests: multiple choice items (TA1 + TH1)	37,5%	2	0.08	1, 3, 4
Assessment using objective tests: multiple choice items (TA2 + TH2)	37,5%	2	0.08	1, 3, 4
Practical assessments: Exams related with the performance in structured objectives and / or objective structured practical exams (PA1)	12,5%	1	0.04	2
Practical assessments: Exams related with the performance in structured objectives and / or objective structured practical exams (PA2)	12,5%	1	0.04	2

## Bibliography

### Anatomy

Tortola GJ, Derrickson B. Principles of Anatomy and Physiology. 15th ed. Ed. Panamericana. 2018

Tibodeau GA, Patton KT. Anatomy and Physiology. 6th ed. Ed. Elsevier. 2007

Gilroy AM et al. PROMETHEUS Atlas of Anatomy. 2nd ed. Ed. Panamericana. 2013

Paulsen, F. Waschke J. Sobotta Atlas of Human Anatomy. 24th ed. Ed. Elsevier. 2018.

### Histology

Kierszenbaum AL, Tress LL. Histology and cell biology. Introduction to pathological anatomy. Elsevier. 2012

Ross, Pawlina. Histology. Text and color atlas with cellular and molecular biology. Ed. Panamericana. 2008

Welsch. Sobota Histology. 2nd ed. Ed. Panamericana. 2008

## **Software**

No specific software is required for this subject