



Single-Cycle Master's Degree Programme in Medicine and Surgery

Academic Year 2026 / 2027

INTEGRATED COURSE (I.C.): Human Anatomy II

NUMBER OF CFU (ECTS credits): 7

SSD (Academic Discipline Code): BIOS-12 (Human Anatomy)

COORDINATOR OF THE I.C.: Prof. [Sciamanna](#) Giuseppe (examination board registrar)

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PREREQUISITE COURSES

None required.

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There are no mandatory preparatory requirements. Knowledge and skills in Human Anatomy I and basic knowledge in Histology and Embryology, Biology and Genetics, Chemistry and Biochemistry are highly recommended.

LEARNING OBJECTIVES

It is a fundamental objective of the course to provide the student in Medicine and Surgery with morpho-functional information on the structure of the internal organs (Splanchnology) and of the human nervous system, essential to the practice of basic medicine.

In addition to the study of the essential morphological characteristics of these systems, their functional correlates at the cellular and sub-cellular level must therefore be clarified. The student will have to learn those contents of Splanchnology and Neuroanatomy that are necessary to approach the examination of the patient and to understand symptomatic pictures and their evolution in pathological degenerations.

The student will also have to acquire knowledge of how the structural organization of the various apparatuses is achieved during embryonic development. Part of the subject will be treated with a systematic and descriptive approach, so as to allow the student to acquire the anatomical language and the knowledge necessary to understand the various elements making up these parts of the human body in functionally homogeneous apparatuses.

The morpho-functional integration between the two different apparatuses, and the structural relationships that arise between them in circumscribed areas of the human body, clinically relevant, will instead be treated from a topographical perspective, also providing notions of radiological anatomy.

EXPECTED LEARNING OUTCOMES

DD1: Knowledge and understanding

Provide a detailed description of the topography and structural organization of the brain and spinal cord, as well as the ultrastructure of neurons and glia and the main characteristics of the cytoarchitecture of the brain and spinal cord.

Provide a detailed description of the topography and structural organization (innervation and vascularization) of the organs of the digestive, respiratory, urogenital and endocrine systems.

Understand the functional anatomy of sensory and motor processing and of higher brain functions such as language and emotions.

Understand the importance of knowing the position of organs and their relationship with adjacent structures.

Present an overview of the main mechanism of organogenesis and the consequences of specific alterations.

Achieve the ability to integrate knowledge from the cellular and molecular level to the level of organ system organization.

DD2: Applying knowledge and understanding

Apply theoretical knowledge in the clinical setting. Identify and recognize the correct anatomical structures and tissues using laboratory and microscopic techniques, providing a complete description. Learn the practical aspects of microscopic investigations and how to perform them. Focus on the description of the main anatomical criteria used in the clinical setting. Identify the main anatomical structures in order to understand their possible structure, physiology, alterations and pathologies.

DD3: Making judgements

Recognize the importance of an in-depth knowledge of the topics consistent with an adequate medical education. Identify the fundamental role of a correct theoretical knowledge of the subject in clinical practice.

DD4: Communication skills

Present topics orally in an organized and coherent manner. Use of scientific language appropriate to and consistent with the subject of the discussion.

DD5: Learning skills

Recognize the possible applications of the skills acquired in the future career. Assess the importance of the knowledge acquired in the overall medical education process.

SYLLABUS**SPLANCHNOLOGY**

Thorax: Respiratory system (completion of the syllabus covered in Anatomy I): larynx, trachea, bronchi, lungs, pleurae, mediastinum. Abdomen: Peritoneal cavity: omental bursa, mesenteries, peritoneal recesses, means of fixation of the abdominal viscera. Digestive system: anatomical relationships, microscopic anatomy, innervation, and vascularization of the esophagus, stomach, small intestine, large intestine and rectum-anal canal, liver, gallbladder, and pancreas. Abdominal vascularization with a particular focus on the abdominal aorta, celiac trunk, superior and inferior mesenteric arteries, hepatic portal system, and portocaval anastomoses. Abdomino-pelvic musculature and inguinal canal. Spleen: macro- and microscopic anatomy. Splanchnic lymphatic system: regional lymphatic drainage of the abdomino-pelvic viscera, intestinal and lumbar lymphatic trunks, cisterna chyli, and thoracic duct. Urinary system: anatomical relationships, microscopic anatomy, innervation, and vascularization of the kidneys, ureters, bladder, and urethra (male and female). Male and female genital systems: anatomical relationships, microscopic anatomy, innervation, and vascularization of the uterus, fallopian tubes, ovaries, vagina, and external genitalia, broad ligament and main ligaments of the genital system, scrotum and testes, epididymis, ductus deferens, spermatic cord, prostate, seminal vesicles, prostatic urethra, penis. Pelvic floor musculature. Endocrine system: pituitary gland (hypophysis), pineal gland (epiphysis), thyroid gland, parathyroid glands, endocrine pancreas, adrenal glands, gonads, chromaffin system. Outline of embryonic development of the digestive system.

NEUROANATOMY.

Overview of the microscopic structures underlying the nervous system function (neurons, glial cells, synapses).

Spinal cord: macro- and microscopic structure, organization of gray and white matter.

Brainstem: surface and internal anatomy of the medulla oblongata, pons, midbrain, and peduncles. Organization of the main gray matter formations (nuclei) and connection pathways with other CNS regions. Cerebellum: macro- and microscopic structure, afferent and efferent pathways, cerebellar nuclei. Diencephalon: macro- and microscopic structure of the thalamus, epithalamus, subthalamus, metathalamus; the bulbo-diencephalic reticular formation, hypothalamus, and pituitary gland. Telencephalon: macro- and microscopic structure of the cerebral hemispheres, main sulci and cortical gyri, functional cortical areas and multimodality association areas, intra- and interhemispheric association systems (corpus callosum, internal capsule, anterior and posterior commissures); the limbic lobe and hippocampus; histological structure of the cerebral cortex.

Functional systems: pyramidal and extrapyramidal pathways, pathways for epicritic and protopathic sensibility, vestibular and auditory pathways, and visual pathways. Cranial nerve nuclei and their functional specialization. Meninges and cerebrospinal fluid system: organization of the meninges in the various regions of the CNS; descriptive anatomy of the ventricular system, formation, circulation, and resorption of

cerebrospinal fluid. Vascularization of the central nervous system: arterial network (anterior and posterior circulation and Circle of Willis), dural venous sinus system, and main cerebral veins.

Autonomic nervous system of the abdominopelvic region. Enteric nervous system.

COURSE STRUCTURE

The course is organized in lectures and theoretical/practical exercises. During the lectures, the explanation of human anatomy will be carried out by projecting illustrative images (Power-Point) and through the use of real-time 3D visual tools (Anatomy Learning, CADAVID anatomical Table) and models. During the exercises, a guided study is planned on anatomical models and specimens relating to the districts mentioned in the course contents, in a fully equipped exercise room. The exercises will also include the observation of microscopic preparations of the anatomical structures described during the lessons. Attendance is mandatory. The course consists of 2.5 hours of practical exercises for each CFU (ECTS credits).

COURSE GRADE DETERMINATION

The assessment of student preparation will take place through a written exam followed by an oral exam. The written test will consist of no fewer than 40 multiple-choice questions (5 options). To be admitted to the oral exam, the student must have answered at least 60% of the questions correctly.

During the oral exam, the student's ability to apply and present knowledge appropriately will be assessed. In particular, the exam will be assessed according to the following criteria:

Fail	Important deficiencies and/or inaccuracies in knowledge and understanding of the topics; limited analytical and synthesis skills, frequent generalizations.
18-20	Barely sufficient knowledge and understanding of the topics, with possible imperfections; sufficient analytical, synthesis and independent judgement skills.
21-23	Routine knowledge and understanding of the topics; correct analytical and synthesis skills with coherent logical argumentation.
24-26	Fair knowledge and understanding of the topics; good analytical and synthesis skills with rigorously expressed arguments.
27-29	Complete knowledge and understanding of the topics; considerable analytical and synthesis skills. Good independent judgement.
30-30L	Excellent level of knowledge and understanding of the topics. Considerable analytical, synthesis and independent judgement skills. Arguments expressed in an original way.

OPTIONAL ACTIVITIES

Students will have the opportunity to carry out theoretical/practical exercises and to attend seminars. The professors will provide constant support during and after the lessons.

READING MATERIALS

TEXTBOOKS

- Treatise on Human Anatomy (3 volumes), Anastasi G. Edi Ermes
- Gray's Anatomy (latest edition) Churchill Livingstone, Elsevier.

ATLASES

- Netter, publisher, Elsevier-Masson
- Human Anatomy, Edi Ermes
- Prometheus-Universita', UTET
- Sobotta, latest edition, Elsevier-Masson

INTEGRATIVE TEXTS (Neuroanatomy section):

- Gray's Clinical Neuroanatomy, by Elliott L. Mancall & David G. Brock
- Snell's Clinical Neuroanatomy 8th Edition by Ryan Splittgerber Ph.D.