UNICAMILLUS

Degree in Medicine and Surgery

Course: Human Anatomy II

SSD: Bio 16

Credits: 7

Professor's name: Prof. Sciamanna Giuseppe

PREREQUISITES

Previous knowledge and competence in the following subjects: Human Anatomy 1, Chemistry and Introductory Biochemistry, Histology and Embryology, Biology and Genetics

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 internal organs (Splancnology) and of the Human Nervous System, essential to the practice of basic medicine. Besides the study of the essential morphological characteristics of these systems, the functional correlates at cellular and sub-cellular level must therefore be clarified. The student will have to learn the contents of Splancnology and Neuroanatomy, necessary to face the patient's examination, and to understand symptomatological aspects and their evolution in pathological degeneration.

The student will also have to acquire the knowledge of how the structural organization of the various apparatuses is realized during the course of embryonic development.

The subject will be treated with a systematic and descriptive approach, allowing the student to acquire the anatomical language and to know the multiple elements constituting these parts of the human body in functionally homogeneous apparatuses. The morpho-functional integration between the different apparatuses, and the structural relationships that are realized between them in localized areas of the human body, relevant from the clinical point of view, will instead be treated according to a topographic perspective, also giving notions of radiological anatomy.

Knowledge and understanding

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

Provide a detailed description of the topography and structural organization of the digestive, respiratory and urogenital systems.

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

Understand the importance of 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.

Be able to integrate knowledge from the cellular and molecular level to the organ system organization level.

Applying knowledge and understanding

Apply the theoretic knowledge to the clinical setting, being able to recognize the general diagnostic aspects of the nervous system diseases. To obtain a basic understanding of the techniques used to investigate morphology and connections of neurons to provide the basis for further research into the nervous system. Approach to the main functional diagnostic tests used to assess the activities of the nervous system and learn how to differentiate the physiological and pathological results.

Making judgements

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

Communication skills

Present topics orally in an organized and consistent manner. Use of a proper scientific language and adequate to the subject of the discussion.

Learning skills

Identify the possible use of the acknowledged skills in the future career. Assess the importance of the acquired knowledge in the overall medical education process.

COURSE SYLLABUS

SPLANCNOLOGY AND MICROSCOPIC ANATOMY **Respiratory system**: trachea, bronchi, lungs, pleurae. The mediastinum (program partially completed in Anatomy I).

Peritoneal cavity: omental bursa, mesenteri, peritoneal recesses.

Digestive system: esophagus, stomach, small intestine, large intestine and anal canal. Abdomino-pelvic musculature and inguinal canal Liver and pancreas.

Urinary system: kidney, ureters, bladder and urethra. Male and female genital system.

Endocrine system: Hypophysis, epiphyses, thyroid, parathyroid, endocrine pancreas, adrenal gonads, chromaffin system.

NEUROANATOMY. Microscopic structures underlying the functioning of the nervous system: sensory receptors (proprioceptors and exteroceptors), neurons, glia, myelin, synapses.

General organization of the pathways of conscious and unconscious sensitivity and motor pathways.

Spinal cord: gray and white substance of the spinal cord, reflex arcs.

Brain stem: medulla oblungata, pons, midbrain, peduncles, grey matter nuclei, connections with other districts of the SNC.

Cerebellum: microscopic structure, afferent and efferent pathways.

Diencephalon: thalamus, epitalamus, subthalamus, meta-thalamus; the reticular bulb-diencephalic formation; the hypothalamus.

Telencephalon,: Basal Nuclei, the cerebral hemispheres, the cortical areas and the intra- and interhemispheric association systems; histological structure of the cerebral cortex; the limbic lobe and the hippocampus.

Functional systems: the pyramidal and extrapyramidal pathways, the pathways of epicritic and protopathic sensitivity.Cranial nerve nuclei and their functional specialization. General organization of nerve plexuses.

Meninges and liquor system: organization of the meninges in the various regions of the SNC; descriptive anatomy of the ventricular system, formation, circulation and reabsorption of CSF. Vascularization of the central nervous system: arterial network and venous sinus system.

Autonomic nervous system: general organization of the vegetative nervous system; parasympathetic and orthosympathetic.

Peripheral nervous system: cranial nerves and spinal nerves. Plexus organization and regional innervation study.

Sense organs: anatomy, histology and nerve pathways of the eye, ear, smell and taste

COURSE STRUCTURE

The course is taught by lectures (42 hours) and theoretical/practical exercises. During lectures, explanation of human anatomy will be performed by projecting images (Power-Point) and using Anatomical 3D Real-time Viewer tools (Compleate anatomy tools) and anatomical modelling. During the exercises there will be a guided study on anatomical models and pieces related to the districts mentioned in the course contents, in a fully equipped exercitation room. The exercises will also include the observation of microscopic preparations of the anatomical structures described during the lessons. Mandatory attendance.

COURSE GRADE DETERMINATION

The assessment of learning takes place on the basis of a written exam followed by an oral exam. The written test will consist of a number not less than 50 questions with multiple choice answers (5 options). To access the oral exam the student must have answered correctly at least 60% of the questions During the oral exam the student's ability to apply and expound knowledge appropriately will be evaluated. In particular, the exam will be evaluated according to the following criteria:

Failed: important deficiencies and / or inaccuracies in knowledge and understanding of the topics; limited capacity for analysis and synthesis, frequent generalizations.

18-20: knowledge and understanding of the subjects quite sufficient with possible imperfections; ability to analyze, synthesis and sufficient judgment autonomy.

21-23: Knowledge and understanding of routine topics; Correct analysis and synthesis skills with coherent logical argumentation.

24-26: Fair knowledge and understanding of the topics; good analysis and synthesis skills with rigorously expressed arguments.

27-29: Knowledge and understanding of the subjects complete; remarkable analytical skills, synthesis. Good independence of judgment.

30-30L: Excellent level of knowledge and understanding of the topics. Considerable analytical and synthesis skills and autonomy of judgment. Arguments expressed in an original way.

OPTIONAL ACTIVITIES

Students will have opportunity to conduct theoretical/practical exercises and to attend at seminars. Professors will provide constant support during and after the lessons.

UNICAMILLUS

TESTI CONSIGLIATI E BIBLIOGRAFIA/READING MATERIALS

Trattato di Anatomia Umana (Anastasi et al.), editor Edi- Ermes
Anatomia del Gray (last edition), editor Elsevier-Masson

ATLAS: Netter, editor Elsevier-Masson OR Prometheus-Universita', editor UTET
Sobotta, last edition, editor Elsevier-Masson

Integrative books: Neuroanatomia (english version): Clinical Neuroanatomy (R. Snell), last edition, editor - Lippincott Williams and Wilkins