UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Organs and Functions

2324-1-I0301D003

Aims

HISTOLOGY
The student will learn:
-To know and describe the structure and ultrastructure of the eukaryotic cell and correlate the morphology to the function of each organelle.
-To know and describe the structure and morpho-functional characteristics of human tissues.

- To know and describe the structure and morpho-functional characteristics of the tissues of tooth and periodontium

ANATOMY
The student will learn:

- To know and describe the human body organization and the anatomic terminology. To know and describe the organ macro- and microscopic anatomy and their relationships.

SPECIAL ANATOMY
The student will learn:

- To describe the Head and Neck Anatomy

PHYSIOLOGY
The student will learn:

- To know and describe the functional mechanism of the integrated biological processes in conditions of normality and the fundamental tools for the pathologic alteration comprehension.

Contents

The course provides students with the fundamental theoretical knowledge of histology, anatomy and physiology, with a view to their subsequent professional application. Within the different modules, the following concepts will be examined: the cell structure, the morpho-functional characteristics of tissues; the organization of the human body and its macroscopic and microscopic structure; specific knowledge of Head and Neck Anatomy; the functional mechanisms of the biological phenomenon integrated in normal conditions and the basic tools to interpret pathological changes.

Detailed program

HISTOLOGY:
Cytology

- General properties of eukariotic cells;
- Cell membrane;
- Cytosol;
- Intracellular compartments, cytoplasmic organelles;
- Nucleus
- Cytoskeleton.

Histology

- Tissues: classification and methods of study;
- Epithelial tissue;
- Connective tissue;
- Adipose tissue;
- Cartilage;
- Bone;
- Smooth muscle, skeletal muscle, cardiac muscle;
- Nervous tissue;
- Blood;
- Tooth and periodontal tissue (enamel, dentin, pulp, cementum, periodontal legament)

ANATOMY:

- General Principles of Anatomy.
- The three-dimensional organization of the human body. Anatomical terminology;
- The body regions;
- Hollow organs and parenchymatous organs;
- Locomotor system and skeleton, joints, muscles;
- Circulatory System;
- Lymphatic system;
- Digestive system;
- Respiratory system;
- Urinary system;
- Female and male reproductive system;
- Endocrine glands;
- Nervous system.

SPECIAL ANATOMY:

- Descriptive anatomy of the cranial bones with particular attention to the splanchnocranium: maxilla, palatine, zygomatic, temporal, mandible and hyoid bone.
- Temporo-mandibular Joint (TMJ)
- Masticatory, facial and hyoid muscles
- Cranial nerves with particular attention to Trigeminal, Facial, Glossopharyngeal and Hypoglossal nerves
- Autonomic Nervous System of the craniocervical region
- Visceral anatomy description: tongue, pharynx and salivary glands
- Teeth and supporting structures
- Paranasal cavities with particular regard to the maxillary sinus
- Intramandibular course of inferior alveolar nerve and its functional implications

PHYSIOLOGY:

- Physiology of the cardiocirculatory system: viscosity and density of the blood; the heart; ventricular pressure-volume relation; conduction system; electrocardiogram; arterial blood pressure and its determinants; blood pressure measurement;
- Respiratory physiology: oxygen transport-utilization system; transport of O2 and CO2 in the blood; principles of mechanics. Acid-base balance. Maintenance of water-salt balance: Homeostasis and internal environment;
- Renal physiology;
- Digestive system physiology;
- Nervous system physiology;
- Muscle physiology;
- . Principles of sport physiology.

Prerequisites

Teaching form

Lectures.

Textbook and teaching resource

Ambrosi G. et al.: Anatomia dell’uomo. Edi-Ermes

Bentivoglio M et al.: Anatomia umana e istologia. Edizioni Minerva Medica

Bani D. et al.: ISTOLOGIA per le professioni triennali e magistrali. Idelson Gnocchi

Adamo S. et al.: ISTOLOGIA per i corsi di laurea in professioni sanitarie. Piccin

In-depth histology of the tooth and the periodontium:
Ten Cate: ISTOLOGIA ORALE. Piccin

AA.VV. : Fisiologia dell’uomo. Edizioni Edi.Ermes, Milano.

Guyton A.C.: Elementi di fisiologia umana. Piccin Editore.

Atlante di Anatomia Umana (Odontoiatria e Medicina), RC Libri DuBrul Lloyd E: Anatomia Orale di Sicher. Edi. Ermes

Last editions

Physiology and Special Anatomy: Teacher will provide other educational material.

Semester

First semester

Assessment method

The evaluation of the student includes a test for each module according to the following methods:

- HISTOLOGY: TEST WITH 15 CLOSED ANSWER (Multiple choice)
- ANATOMY: TEST WITH 12 CLOSED ANSWER (Multiple choice)+ 1 OPEN QUESTION
- PHYSIOLOGY: TEST WITH 30 CLOSED ANSWER (Multiple choice). At the discretion of the professor, the oral examination will be held.
- SPECIAL ANATOMY: TEST WITH 15 CLOSED ANSWER (Multiple choice)
  The final evaluation (in thirtieths) will derive from the weighted average of evaluations (in thirtieths) obtained in modules described above.

Office hours

Reception by appointment.

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION