UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Human and Ocular Anatomy and Histology

2122-1-E3002Q032

Aims

The course is aimed to provide the student with an adequate knowledge of the appropriate anatomical terminology, of the topographic and structural organization of human body, as well as of the main morphological features of tissues and organs. Moreover, during the lessons, it will be emphasized the correlation between structure and function, pivotal to understand the course themes. In addition, the course will provide also some pathology nods, described as a consequence of organ alterations.

Contents

Anatomy is described by using a sistemic approach. Items:

Basic Citology

Histology: Tissue Histology

Gross Anatomy: Skeletal and muscular system, Respiratory system, Cardiovascular system, Digestive system, Urinary system, Endocrine system, Lymphatic & Immune systems, Reproductive system, Visual system, Basic Neuroanatomy.

Detailed program

Microscopic organization of cells and tissues of the human body, their interactions and morpho-functional correlations.

Cytology

Investigation methods

The cell and its peculiar features: morphology, dimension, life and death.

Structure, sub-cellular structure, chemical composition and functions of the following cellular components:

Plasma membrane, Nucleus, Cytoplasm, Ribosomes - Rough endoplasmic reticulum (RER), Smooth endoplasmic reticulum (SER), Golgi apparatus, Lysosomes, Peroxisomes, Mitochondria, Cytoskeleton and Cytoplasmic filaments (Microtubules, Microfilaments, Intermediate Filaments)

Cellular Activities: division, movements, endocytosis and exocytosis.

Histology

Investigation methods

Morphology, function and localization of the following tissues:

epithelial tissue, connective tissue (fibrous connective, cartilage, bone, blood), muscle tissue (skeletal muscle, cardiac muscle and smooth muscle), and nervous tissue.

Gross Anatomy

Anatomical position and plane of movements, specific terms and investigation methods. Compartments and Cavities.

Integumentary system: Skin and related glands.

Locomotor system: classification, morphology and function of bones, muscles and joints. Basic organization of human skeleton. Spinal column and Skull (with anatomical models). Joints and movements.

Respiratory system: airway, lungs, and muscles of respiration.

Cardiovascular system: Heart and circulatory loops. Heart: morphology and structure. Structure of the heart wall: Epicardium, Myocardium, and Endocardium. Pericardium, chambers of the heart, and valves. F*ibrous cardiac skeleton, cardiac syncytium, and* conduction system of the heart.

Structure of blood vessels: arteries, veins and capillaries. *Pulmonary circulation loop* and the *systemic circulation loop.*

Immune and lymphatic systems, with lymphatic vessels and organs: thymus, spleen, lymph nodes and bone marrow.

Digestive system: Basic knowledge of gastrointestinal tract and related accessory organs (pancreas and salivary glands). Liver structure.

Urinary system: basic knowledge of morphology and function of kidney.

Endocrine system. Pituitary gland: morphology and function of anterior and posterior pituitary glands. Regulation of pituitary gland function. Morphology and function of thyroid gland. Parathyroid glands. Adrenal glands: morphology,

function, and their main hormones. Pancreatic islets (of Langherans).

Male and Female Reproductive system: basic anatomy of testis, ovaries and uterus. Ovarian and uterine cycles.

Visual system. Structure and function of the eye: fibrous, vascular, and nervous tunics. Aqueous humor, vitreous chamber, and lens. Retina and optic nerve. Basic visual pathways. Muscles of the eye. Skull description, with a focus on orbit and basicranium.

Basic knowledge of Neuroanatomy.

Prerequisites

Students will be required to have completed a high school diploma.

Teaching form

The course is organized with 48 hours of Gross Anatomy and 24 hours of Cytology, Histology and Microscopic Anatomy.

Lessons will be in presence, unless otherwise provided by any ministerial changes following the COVID pandemic situation.

The course will be in italian.

Textbook and teaching resource

Recommended Textbooks:

•“Anatomia Umana” di Martini - Timmons – Tallitsch EdiSES

•“Anatomia Umana” di Saladin PICCIN

•“Anatomia Umana” di Castano et al. edi-ermes

•“Anatomia Umana e Istologia ” di Bentivoglio et al. Minerva Medica

•“Netter Anatomia da colorare” di Hansen Ed PICCIN

For Histology and Cytology:

•«Wheater. Istologia e Anatomia microscopica" di Young and Heath Ed. Edra Masson

•«Junqueira Istologia" di Mescher and Junquiera. Ed PICCIN

Recommended textbook titles, as well as the lesson slides will be available on E-learning.

Semester

1st semester

Assessment method

A mid-course assessment is not scheduled. At the end of the course, the assessment will be based on a written examination with 20 multiple choice questions on the course topics and 2 open questions focused on the visual system. Upon request by the student, the exam could be carried out in english or through an oral examination.

Exams will be in attendance, subject to any ministerial changes following the COVID pandemic situation.

Office hours

Every day, by appointment.