



UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Organs and Functions

2324-1-I0303D003

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.

ANATOMY

The student will learn to know and describe the human body organization, the anatomic terminology and will acquire a detailed knowledge of the organs, vessels and nervous structures in the different systems, their position and relations.

SPECIAL ANATOMY

The student will learn principles of Radiological 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

addressed: the cell structure, the morpho-functional characteristics of tissues; the organization of the human body and its macroscopic and microscopic structure; the functional mechanisms of the biological phenomenon integrated in normal conditions and the basic tools to interpret pathological changes. The course also provides insight to Radiological Anatomy.

Moreover the course provides students with the fundamental theoretical knowledge of Radiological Anatomy, with a view to their subsequent professional application.

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.

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: skeleton, joints, muscles.
- Circulatory System.
- Lymphatic system and lymphoid organs
- Digestive system. Respiratory system. Urinary system. Female and male reproductive system. Endocrine system. Nervous system.
- Integumentary system: general characteristics of skin and its appendages. Mammary gland
- Special senses : eye and ear

SPECIAL ANATOMY

Radiological Anatomy

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

Frontal lessons.

Practical activities with anatomical models.

Testing to evaluate learning during frontal lessons

Textbook and teaching resource

D. Bani, Istologia per le lauree triennali e magistrali, Idelson Gnocchi,

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

Ambrosi G. e altri. Anatomia dell'Uomo (2006) - Edi-Ermes

Bentivoglio M. e altri. Anatomia Umana e Istologia (2010) - Ed. Minerva Medica

Saladin KS. Anatomia Umana. (2011) – Piccin

McKinley M., O'Loughlin VD. Anatomia Umana. Ed. italiana (2014) - Piccin

Seeley e altri. Anatomia (2014) – Idelson-Gnocchi

Gilroy AM. Elementi di Anatomia Umana – Edises (2017)

Martini FH e altri. Anatomia Umana (2019) - Edises

Barbatelli G. e altri. Anatomia Umana – Fondamenti (2018) – Edi-Ermes

Cappello F.(curatore) - autori vari – Anatomia Clinica (2019) – Idelson-Gnocchi

Carinci e altri – Anatomia Umana e Istologia – Edra (2022)

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

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

Atlas:

Netter - Atlante di Anatomia Umana - Edra

Netter - Atlante di Anatomia Umana - Scienze Infermieristiche - Edra

Prometheus - Atlante di Anatomia - Edises

Atlante - Anatomia Umana - Anastasi G e altri - Edi-Ermes

Radiological Anatomy:

Tillman B.: Atlante di Anatomia Umana (Odontoiatria e Medicina), RC Libri

Weber E., Vilensky J., Carmichael S.: Anatomia radiologica di Netter. Ed Elsevier

Last editions

Semester

First semester

Assessment method

Written exam eventually followed by an oral exam upon request of the teachers or the student.

The written test will consist of:

- 15 multiple choice questions on Histology
- 30 multiple choice questions on Physiology
- 3 open questions on Anatomy (locomotor system, splanchnology, nervous system)
- 1 open question on Special Anatomy (description of a radiological image).

The overall evaluation will be expressed in thirtieths.

Office hours

Reception by appointment.

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION
