UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Organs and Functions

2122-1-I0302D003

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

SPECIAL ANATOMY

Insight into 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 examined: 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 into Radiological Anatomy.

Detailed program

HISTOLOGY:

Cytology: General properties of eukariotic cells. Cell membrane. Cytosol, intracellular compartments, cytoplasmic organelles, nucleus and 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 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:

Radiological Anatomy

PHYSIOLOGY:

Oxygen transfer from air to mitochondria. Respiratory transfer, cardiovascular transfer. Maintenance of water-salt balance: homeostasis and internal environment. Renal functionality. Nutrition and Energy: Gastrointestinal functionality; energetic metabolism of the integrated system; Hormonal control and mechanisms of action,

hormonal systems; Integration of endocrine functionality, neuroendocrine-

immunological aspects; movement, information and integration: signals in nervous system; sensory processes; simple and

complex reflexes; Memory, learning, behaviour, language and emotions

Prerequisites

Teaching form

Lectures and exercises. Lessons in attendance, subject to any ministerial changes following the COVID pandemic situation.

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

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

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

For supplementary studies:

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

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

Carmichael S.: Anatomia radiologica di Netter. Ed Elsevier

Last editions

Semester

First semester

Assessment method

The final mark, based on the average score obtained by the students during the different evaluations, is set during an oral interview with the student, during which the written tests are scrolled to check mistakes.

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

Office hours

By appointment required by mail.