



UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Fundamentals of Human Morphology

1718-1-H4102D007

Aims

The student will be able to communicate effectively with colleagues and to use and understand anatomical language appropriately. Knowledge of accepted general anatomical terminology will be achieved. The student will be able to demonstrate the position of palpable landmarks of the different regions and will acquire knowledge of the characteristic features, organ content and 3-D arrangement of the head, neck, thorax, abdomen, pelvis and arms. The general features of the systems further described in detail in "Locomotor system diseases", "Cardiovascular and respiratory diseases", "Neuroscience I and II", "Digestive health", "Endocrine, kidney and urinary tract diseases" and "Mother and child" will be addressed.

Contents

Histology and microscopic anatomy; principles of general anatomy; regional anatomy; general principles of systematic anatomy; use of the microscope; gross anatomy.

Detailed program

- Histology and its methods of study
- Cytology: general properties of eukariotic cells
- Plasma membrane: structure, molecular composition, functions.
- Cell connections: tight junctions, gap junctions and desmosomes.
- Cytosol: molecular composition and functions

- Cytoplasmic organelles: Mitochondria, Ribosomes, Endoplasmic reticulum (rough and smooth), Golgi complex, Lysosomes, Peroxisomes
- Cytoskeleton: Microtubules, Actin filaments and intermediate filaments
- Trafficking, sorting and secretion of proteins
- Nucleus and nucleolus
- Cell death: Apoptosis and necrosis

Tissues:

- Epithelial tissue: covering epithelia and glandular epithelia. Microvilli, cilia, flagellum, stereocilia. Basement membrane.
- Connective tissue: cells, ground substance, fibers. Types of connective tissue: loose, dense irregular, dense regular, elastic connective tissue.
- Adipose tissue: unilocular and multilocular adipose tissue.
- Cartilage: hyaline, elastic and fibrocartilage.
- Bone: bone cells, bone matrix. Type of bone: primary and secondary bone tissue; compact and spongy bone. Histogenesis: intramembranous and endochondral ossification. Remodelling and repair.
- Muscle tissue: smooth, skeletal and cardiac muscle. Stimulation. Contraction. Regeneration.
- Nervous tissue: neurons and glial cells. Myelin: myelinated and unmyelinated fibers. Synaptic communication.
- Blood: plasma and cells (erythrocytes, leukocytes, platelets)

Embryology:

- Gametogenesis
- Fertilization
- First Week
- Second Week: Becoming Bilaminar and Fully Implanting
- Third Week: Becoming Trilaminar and Establishing Body Axes
- Fourth Week: Forming the Embryo
- Principles and Mechanisms of Morphogenesis
- Neurulation
- Somites and derivatives
- Placenta, allantois, amnion, chorion and yolk sac

Anatomy and its subdivisions

- Systematic anatomy
- Regional anatomy
- Microscopic anatomy

Anatomical terminology

Terms of position

- Terms of movements and directions
- Systematic anatomy
- Topographic anatomy

The skin

Principles of gross anatomy of:

- locomotor system,
- cardiovascular system,
- lymphoid system,
- respiratory system,
- digestive tract,
- urinary tract,
- female and male genital system,
- endocrine system.

Principles of the anatomic organization of the central, peripheral and autonomic nervous system.

Principles of radiologic anatomy.

Principles of clinical anatomy

Use of the light microscope

Microscopic examination of normal organs

Prerequisites

college-level scientific knowledge

Teaching form

Lessons, seminars, laboratory practice

Textbook and teaching resource

Gray's Anatomy: The Anatomical Basis of Clinical Practice, by Susan Standing PhD DSc (Author)

Atlas of Human Anatomy, by Frank H. Netter MD (Author)

Semester

second term

Assessment method

Oral examination, practical examination at the light microscope

Office hours

Mon-Fri, by appointment
