



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## SYLLABUS DEL CORSO

### Istologia

2425-1-I0303D003-I0303D009M

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#### Aims

The student must:

- ? know and be able to describe the structure and ultrastructure of the eukaryotic cell and correlate the morphology with the function of each organelle.
- ? know and be able to describe the structure and morpho-functional characteristics of the tissues that make up the human organism

#### Contents

The Histology module provides the student with essential theoretical knowledge of the ultrastructure of the eukaryotic cell and the structure of the different tissues of the human organism.

#### Detailed program

##### Cytology

- ? Eukaryotic cell: general architecture;
- ? Plasma membrane: ultrastructure, functions, specializations (occluding, adherens and communicating junctions; specializations of the apical pole: microvilli, cilia, stereocilia);
- ? Nucleus and nucleolus: ultrastructure, functions;
- ? Cytosol;
- ? Cytoskeleton: ultrastructure and functions of the different components: microtubules, microfilaments, intermediate filaments;
- ? Ribosomes: ultrastructure and functions. Notes on protein synthesis;
- ? Endoplasmic reticulum: ultrastructure and functions of the rough and smooth endoplasmic reticulum. Notes on

vesicular transport;

? Golgi apparatus: ultrastructure and functions. Notes on post-translational modifications and sorting;

? Lysosomes: ultrastructure and functions. Notes on biogenesis;

? Peroxisomes: ultrastructure and functions;

? Mitochondria: ultrastructure and functions.

## **Histology**

? General characteristics, classification and study methods of fabrics;

? Epithelial tissue: characteristics and classification of the epithelial lining and glandular tissue.

? Mode of secretion;

? Connective tissue proper: cells and extracellular matrix. Classification: embryonic connective tissue, loose, dense, reticular, elastic;

? Adipose tissue: characteristics and functions of unilocular and multilocular adipose tissue;

? Cartilage tissue: cells and extracellular matrix. Classification: hyaline cartilage, elastic, fibrous;

? Bone tissue: cells and extracellular matrix. Classification: compact and spongy bone tissue. Remodeling and hormonal control;

? Muscle tissue: characteristics of skeletal striated, cardiac striated, smooth muscle tissue. Functional aspects and regulation of muscle contraction;

? Nervous tissue: morpho-functional characteristics of neurons. Axonal transport. Nervous fibres. Notes on the generation and propagation of the nervous impulse. Synapses. Characteristics and classification of neuroglia;

? Blood: characteristics and functions of plasma and figured elements.

## **Prerequisites**

Scientific knowledge at secondary school level

## **Teaching form**

6 frontal lessons (2 hours long) carried out in attendance

## **Textbook and teaching resource**

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

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

Last editions

## **Semester**

First semester

## **Assessment method**

The histology written test will consist of 15 multiple choice questions to check preparation on the exam programme.

## **Office hours**

From Monday to Friday upon request for an appointment via email (gabriella.nicolini@unimib.it, Monza ; aallegri@asst-pg23.it, Bergamo).

## **Sustainable Development Goals**

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION | GENDER EQUALITY | REDUCED INEQUALITIES

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