

## SYLLABUS DEL CORSO

### Istologia

2324-1-H4601D002-H4601D009M

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#### Aims

The objectives of the course are to provide expertise in histology, microscopic anatomy and embryology. Practical activities using light microscope observations will be used to reach the teaching objectives.

#### Contents

The primary goal of the course is to provide a good knowledge of the human histology, microscopic anatomy and prenatal development.

#### Detailed program

##### GENERAL HISTOLOGY

-Tissues: general characteristics and classification.

- Methods for preparation of histological specimens.
- For each of the following tissue structural, ultrastructural, functional characteristics and classification will be discussed:
- Lining epithelia. Exocrine gland epithelia. Merocrine, apocrine, holocrine and eccrine secretion;
- Proper connective tissue. Intercellular substance of the connective tissue (fibres and ground substance). Biosynthesis of collagen. Connective tissue cells;
- Adipose tissue (unilocular and multilocular adipose tissue);
- Cartilage (hyaline, elastic and fibrous cartilage);
- Bone (woven and lamellar bone, compact and trabecular bone). Osteogenesis (intramembranous and endochondral ossification);

- Muscle tissue (smooth, skeletal striated and cardiac striated muscle tissue). Sarcomere ultrastructure and mechanisms of contraction, neuromuscular spindle and Golgi tendon organ;
- Nervous tissue (neurones and neuroglia). Myelin and myelination. Nervous fibres;
- Blood tissue and hematopoiesis;
- Stem cells.

## GENERAL EMBRYOLOGY

- Introduction. Gametogenesis (spermatogenesis and spermatozoa, oogenesis and oocytes).
- Capacitation. Fertilization. Cortical reaction. Zygote.
- First week of development: segmentation, morula, cavitation, blastocyst (embryoblast and trophoblast).
- Implantation.
- Early development of human embryo: formation of epiblast and ipoblast, bilaminar embryonic disc.
- Late development of human embryo: primitive streak, epithelial-mesenchymal transition (gastrulation), formation of mesoderm, trilaminar embryonic disc, notochord and formation of body axes, neurulation (neural tube and neural crest cells).
- Cephalo-caudal and lateral folding.
- Germ layers (ectoderm, endoderm and mesoderm) and their derivatives.
- Somites and their derivatives.
- Pharyngeal arches and their derivatives.
- Intra-embryonic Coelom formation.

## MICROSCOPIC ANATOMY:

- Introduction for correct use of the light microscope. Overview of the morphological characteristics of the different tissues that constitute the human body.
- Skin. Structure, organization and histology.
- Digestive system. Structure, organization and histology of lip, tongue, esophagus, stomach, small, large intestine.
- Digestive glands. Structure, organization and histology of liver, gallbladder, pancreas, salivary glands.
- Endocrine system. Structure, organization and histology of hypophysis, thyroid, parathyroid, adrenal glands.- Urinary system. Structure, organization and histology of kidney, minor and major calyx, renal pelvis, ureters, bladder, urethra.
- Respiratory system. Structure, organization and histology of olfactory mucosa, larynx, trachea, bronchial tree (primary, secondary and tertiary bronchi, bronchioles, terminal and respiratory bronchioles, alveolar ducts and alveolar epithelium), lung.
- Female reproductive system. Structure, organization and histology of ovary, fallopian tubes, uterus.
- Male reproductive system. Structure, organization and histology of testis, tubuli recti, rete testis, ductuli efferentes, epididymis, duct system, seminal vesicles, bulbourethral glands, prostate.
- Lymphatic system. Structure, organization and histology of thymus, lymph node, spleen, tonsil, lymphatic vessels.

## Prerequisites

College level scientific knowledge

## Teaching form

Frontal lessons and optical microscopy exercises.

## **Textbook and teaching resource**

See the "Anatomia, Istologia ed Embriologia Generali e dell'Apparato Stomatognatico" syllabus

## **Semester**

1st and 2nd terms

## **Assessment method**

An extensive mid-course assessment is scheduled for the end of the first term, for the details see Syllabus of "Anatomia, Istologia ed Embriologia e dell'Apparato Stomatognatico".

## **Office hours**

By appointment

## **Sustainable Development Goals**

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

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