



Dipartimento di Scienze e Tecnologie

ACADEMIC YEAR 2017/2018

PROGRAM

I YEAR II SEMESTER

DEGREE COURSE in Biological Sciences

TEACHING COURSE: Cytology and Histology

TEACHER Prof. Marina Paolucci

CYTOLOGY

Organization of animal cell. The plasma membrane. Cellular communication. Membrane receptors and intracellular. The signal transduction. cell junctions. The cytoplasmic matrix. The cytoplasmic membrane system: the endoplasmic reticulum and smooth and the Golgi apparatus. The vesicular flow. Exocytosis and endocytosis. Ribosomes. Protein biosynthesis. The cytoskeleton. Cilia and flagella. The nucleus: the nuclear membrane, the structure of interphase nucleus, chromatin, the non-histone proteins and nuclear matrix. DNA replication. Gene transcript information and the nucleolus. The cell cycle. The chromosomes. The cell division.

HISTOLOGY

The epithelial tissue: general. Classification of epithelia. Cytological characters of epithelia. The basement membrane. The microvilli. Exocrine and endocrine glands. Classification of exocrine glands. Endocrine glands: histological structure and classification.

Connective tissue. connective tissue fibers: collagen, tropocollagen, elastic, and reticular fibers. The amorphous substance. The connective tissue cells. Variety of connective tissues.

cartilage tissue: general description. Types of cartilage: hyaline, elastic and fibrous.

The bone tissue: general description. Types of bone tissue: lamellar and non-lamellar. Organization macroscopic bone. microscopic and submicroscopic structure and chemical composition of the compact and spongy bone tissue.

Blood and lymph: general description. Blood composition: plasma and cells. General immunity concepts.

Nervous tissue: general description. Types of neurons: unipolar, bipolar, multipolar, pseudounipolar. the axon coating sheaths. The synapse. general organization of the central and peripheral nervous system. The neuroglia.

Muscle tissue: general description. Types of muscle tissue: striated, cardiac and smooth. Structure of the sarcomere. The mechanism of the muscle contraction. The neuromuscular junction.

RECOMMENDED BOOKS

Any text of Cytology and Histology as long as it is recent.