

CONTENT OF THE SUBJECT

Subject:	Histology and embryology 1		
Study	<i>Dental medicine</i>	Study Period:	<i>1st year Winter semester</i>
Evaluation:	<i>Absolved (A-E)</i>	Subject Type:	<i>Compulsory</i>
Content:	<i>2 h lectures and 3 h practical exercises / week</i>		<i>Total 28/42 hours</i>

Department: **Department of Histology and Embryology, UPJŠ FM**

Week	Lectures https://portal.lf.upjs.sk/index-en.php	Practical exercises
1.	The subject matter of histology, history of the histology. Cytology I Composition of the cells, intercellular substance and tissue fluid. Structure (EM, biochemical composition) and function of cell membrane, transmembrane transport, receptors.	Histologic technics Tissue sampling, fixation, dehydration, clearing, embedding, sectioning, staining and mounting. Light and electron microscopy.
2.	Cytology 2 Membranous and nonmembranous organelles, nucleus and nucleolus, cytoplasmic matrix, cytoplasmic inclusions, cytoskeleton.	Obsevation under the light microscope: Cytology - the size and shape of the cells ganglion spinale – round cells medulla spinalis – star-shaped cells cerebellum – pear-shaped cells intestinum tenue – goblet cells
3.	Epithelial tissue I Covering epithelium, cell junctions – zonula occludens, zonula adherens, macula adherens, nexus. Basement membrane LM and EM structure.	Epithelial tissue I simple covering epithelium. pulmo - simple squamous epithelium ren – simple cuboidal epithelium vesica fellea – simple columnar epith. epididymis – pseudostratified columnar epithelium with stereocilia
4.	Epithelial tissue II Glandular epithelium: endocrine and exocrine. Secretory and duct portion – structure and function. Types of exocrine secretion. Cells producing steroids, mucus, proteins.	Epithelial tissue II trachea – ciliated pseudostratified columnar epithelium ureter – transitional epithelium vagina - stratified squamous nonkeratinized epithelium cutis – stratified squamous keratinized epit.
5.	Connective tissue proper Cells, amorphous ground substance, types of fibers. Classification of connective tissues, loose connective tissue, dense connective tissue, connective tissue with special function.	Connective tissue I cutis, papillary layer – loose connective tissue cutis, reticular layer - dense connective tissue irregular tendo - dense connective tissue regular

CONTENT OF THE SUBJECT

6.	<p>Cartilage Cells, fibers, amorphous ground substance. Types of cartilage – hyaline, elastic and fibrocartilage. Perichondrium structure and function.</p>	<p>Connective tissue II aorta – elastic tissue textus adiposus nodus lymphaticus - textus reticularis umbilical cord – mucous tissue</p>
7.	<p>Bone tissue I Bone cells, bone matrix. Microscopic structure of compact and spongy bone. Periosteum, endosteum. Primary and secondary bone tissue.</p>	<p>Cartilage trachea – hyaline cartilage epiglottis – elastic cartilage cartilago fibrosa – fibrocartilage</p>
8.	<p>Bone tissue II Endochondral and intramembranous ossification. Haematopoiesis - development of erythrocytes.</p>	<p>Bone tissue textus osseus – lamellar compact bone tissue ossificatio – (epiphysis) spongy bone tissue</p>
9.	<p>Muscular tissue I Striated skeletal muscle, light (LM) and electron microscopic (EM) structure. Principle of contraction. Function. Development.</p>	<p>Ossification ossificatio – epiphyseal plate, endochondral ossification, intramembranous</p>
10.	<p>Muscular tissue II Cardiac muscle, smooth muscle tissue. LM and EM structure. Principle of contraction. Afferent and efferent nerve endings</p>	<p>Muscle tissue lingua – skeletal muscle myocardium – cardiac muscle intestinum tenue – smooth muscle tissue</p>
11.	<p>Nerve tissue Neuron and its processes – dendrites and axon, synapses, myelin sheath. Myelination. Neuroglial cells – astrocytes, oligodendrocytes, microglial cells, ependymal cells.</p>	<p>Nerve tissue medulla spinalis – nerve cells, ependymal cells (Nissl staining) cerebrum – glial cells (silver impregnation)</p>
12.	<p>Embryology I Developmental principles in the ontogenesis. Gametogenesis, fertilization, zygote, morula, blastocyst, implantation. 1st week of development.</p>	<p>Blood and blood cells blood smear – red and white blood cells, platelets</p>
13	<p>Embryology II 2nd and 3rd week of human development. Primitive streak, development of mesoderm, notochord, neurulation. Somites. Primitive cardiovascular system.</p>	<p>Haematopoiesis Bone marrow structure and development. Development of erythrocytes.</p>

CONTENT OF THE SUBJECT

14.	Final semestral test	Credit week Examination of slides
------------	-----------------------------	--