

SYLLABUS Lectures and laboratory seminars in Cytology, Histology and Embryology, 1 st year Dental medicine – 1 st semester 2024/2025		
Weeks	Practical lessons - 2 h	Lectures - 2 h Prof. P. Atanassova, MD, PhD Assoc. prof. N. Penkova, MD, PhD
I week 01.10 - 04.10	Cytoplasm. Cell organelles. <i>Microscopic slides:</i> 1. Nissl substance (granules) 2. Mitochondria 3. Golgi complex <i>Electron microphotographs:</i> 1. Rough endoplasmatic reticulum 2. Smooth endoplasmatic reticulum 3. Ribosomes 4. Mitochondria 5. Golgi complex 6. Centrosome	
II week 07.10 - 11.10	Nucleus in interphase. Mitosis. <i>Microscopic slides:</i> 1. Nucleus in interphase 1.1. H-E staining 1.2. Feulgen staining 2. Mitosis in cells of pea radix <i>Electron microphotographs:</i> 1. Interphase nucleus	Prof. P. Atanassova, MD, PhD Cell membrane (plasmalema) Intercellular contacts. Cell organelles - structural, ultrastructural, and functional characteristics. Endoplasmatic reticulum, Ribosomes. Mitochondria Golgi complex Lysosomes
III week 14.10 - 18.10	Cell inclusions. Cytophysiology. <i>Microscopic slides:</i> 1. Lipid drops 2. Glycogen granules in hepatic cells 3. Phagocytosis 4. Secretion (secretory granules) <i>Electron microphotographs:</i> 1. Lipid drops	Prof. P. Atanassova, MD, PhD Nucleus. Interphase nucleus- structural, ultrastructural, and functional characteristics. Mitosis. Cell inclusions. Cytophysiology.

	<ul style="list-style-type: none"> 2. Glycogen granules 3. Lysosomes 4. Secretory granules 5. The cell membrane 6. Microvilli 7. Desmosomes 8. Interdigitations 9. Cilia - longitudinal and transverse section 	
<p>IV week</p> <p>21.10 - 25.10</p>	<p>Epithelia. Simple epithelia.</p> <p><i>Microscopic slides:</i></p> <ul style="list-style-type: none"> 1. Simple squamous epithelium 2. Simple cuboidal epithelium 3. Simple columnar epithelium 4. Unilayered (pseudostratified) ciliated columnar epithelium 5. Henle's epithelium 	<p>Prof. P. Atanassova, MD, PhD</p> <p>Epithelial tissue.</p> <p>Unilayered epithelia</p> <p>Multistratified epithelia</p> <p>Secretory epithelia</p> <ul style="list-style-type: none"> 1. Histogenesis 2. General characteristics 3. Classification
<p>V week</p> <p>28.10 - 01.11</p>	<p><u>Cytology Colloquium – 50 points:</u></p> <p>1. Practical part – 20 points</p> <p>- 7 microscopic slides (7 x 2 points = 14 points)</p> <p>- 6 electron microphotographs (6 points)</p> <p>2. Theoretical part – MCQ test, 30 points</p>	
<p>VI week</p> <p>04.11 - 08.11</p>	<p>Multistratified epithelia. Secretory epithelia.</p> <p><i>Microscopic slides:</i></p> <ul style="list-style-type: none"> 1. Stratified squamous nonkeratinizing epithelium 2. Stratified squamous keratinizing epithelium 3. Secretory epithelia: <ul style="list-style-type: none"> 3.1. Simple tubular glands 3.2. Serous, mucous and compound alveolar (acinar) glands 	
<p>VII week</p> <p>11.11 - 15.11</p>	<p>Fibrous connective tissue.</p> <p><i>Microscopic slides:</i></p> <ul style="list-style-type: none"> 1. Loose connective tissue 2. Collagenous fibrous tissue 3. Elastic tissue 4. White adipose tissue: <ul style="list-style-type: none"> 4.1. Sudan III-H staining 4.2. H-E staining <p><i>Electron microphotographs:</i></p>	

	<ol style="list-style-type: none"> 1. Multilocular adipocyte 2. Fibroblast 3. Mast cell 4. Plasma cell 5. Macrophage 6. Collagen fibers 	
VIII week 18.11 – 22.11	Connective tissue with solid intercellular substance. <i>Microscopic slides:</i> <ol style="list-style-type: none"> 1. Hyaline cartilage 2. Elastic cartilage 3. Compact bone – decalcinated 4. Compact bone – Schiff, demonstration <i>Electron microphotographs:</i> <ol style="list-style-type: none"> 1. Osteocyte 2. Osteoclast 	Assoc prof. N. Penkova, MD, PhD Connective tissue. <ol style="list-style-type: none"> 1. Histogenesis 2. Cells 3. Intercellular substance Fibrous connective tissue. Connective tissue with solid intercellular substance. <ol style="list-style-type: none"> 1. Cartilage 2. Bone tissue
IX week 25.11 - 29.11	Blood tissue. <i>Microscopic slides:</i> <ol style="list-style-type: none"> 1. Blood smear - examination <i>Electron microphotographs:</i> <ol style="list-style-type: none"> 1. Neutrophil granulocyte 2. Eosinophil granulocyte 3. Lymphocyte 4. Platelets Muscle tissue. <i>Microscopic slides:</i> <ol style="list-style-type: none"> 1. Smooth (visceral) muscle tissue 2. Striated skeletal muscle tissue 3. Striated cardiac muscle tissue 4. Impulse conductive cardiac muscle tissue <i>Electron microphotographs:</i> <ol style="list-style-type: none"> 1. Smooth muscle cell 2. Myofibril – skeletal 3. Cardiomyocyte - myofibril 	
X week 02.12 – 06.12	Nerve tissue. <i>Microscopic slides:</i> <ol style="list-style-type: none"> 1. Multipolar neurons 2. Pear-like neurons 3. Pyramidal neurons 4. Myelinated nerve fibers <i>Electron microphotographs:</i> <ol style="list-style-type: none"> 1. Myelinated nerve fiber 2. Myoneural synapse 	Assoc prof. N. Penkova, MD, PhD Blood tissue. <ol style="list-style-type: none"> 1. Histogenesis 2. General characteristics 3. Classification 4. Cells <ol style="list-style-type: none"> 4.1. Erythrocytes 4.2. Leucocytes

		4.3. Platelets Muscle tissue. 1. Histogenesis 2. General characteristics 3. Classification
XI week 09.12. - 13.12	Reproductive tissue. <i>Microscopic slides:</i> 1. Oocyte 2. Spermatozoa <i>Electron microphotographs:</i> 1. Oocyte 2. Spermatozoon General embryology. Gastrulation. 1. Early gastrulation 2. Late gastrulation Extra-embryonic layers <i>Microscopical slides:</i> 1. Umbilical cord of newborn baby 2. Placenta	
XII week 16.12 – 20.12	Test on Epithelial, Connective, Blood, Muscle and Nerve tissues - 90 points. 1. Practical part – 20 points (12 microscopic slides + 8 electron microphotographs) 2. Theoretical part (MCQ test) – 70 points.	Assoc prof. N. Penkova, MD, PhD Nerve tissue. 1. Histogenesis 2. General characteristics 3. Classification 4. Cells – neurons, neuroglia
XIII week 23.12 - 27.12	General embryology.	Prof. P. Atanassova, MD, PhD Reproductive tissue. General embryology. Extra lecture - ONLINE

Semester tests:

1. Cytology Colloquium – 50 points
2. Test on epithelial, connective, blood, muscle, and nerve tissues – 90 points

Total score points for the semester – 140

Evaluation:

- 132 – 140 Т. – 6,00
126 – 131 Т. – 5,50
116 – 125 Т. – 5,00
108 – 115 Т. – 4,50
100 – 107 Т. – 4,00
92 – 99 Т. – 3,50
84 – 91 Т. – 3,00
< 84 Т. – 2,00

Textbooks

1. Basic Histology, I.C. Janqueira
2. Clinical and Functional Histology for Medical Students, Richard S. Snell
3. Histology, R. Henrikson
4. Histology - A Text and Atlas, M. Ross, 6th edition
5. Practicum of Cytology, Histology and Embryology, P. Atanassova, Y. Koeva
6. Handbook in Cytology, Histology and Embryology, Y. Koeva

EXEMPTION

Cytology Colloquium:

Students with **90 % of practical part (18 points) and 90% of MCQ test (27 points)** exempt the Cytology section of the final Cytology, Histology and Embryology exam.

Total score points (Cytology + Histology points):

Students with **90% of the points in total (≥ 126 points)** exempt the entrance test of the final exam. They will attend the written part of the exam (essay).

Prepared by:

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