

Semester 2, 2022/2023

## Programme of lectures and practicals in Histology and Embryology for the 1st year of General medicine (aVL)

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### Lectures

1. 13. 2. – 17. 2. 2023 <b>Introduction:</b> Histology – definition, classification and significance. <b>Cytology I:</b> The cell – definition and general characteristics. Concept of the unit membrane.
2. 20. 2. – 24. 2. 2023 <b>Cytology II:</b> Plasma membrane. Cell surfaces and intercellular junctions. Cell cycle, cell division and cell differentiation.
3. 27. 2. – 3. 3. 2023 <b>General embryology I:</b> Human gametes. Meiosis: spermatogenesis and oogenesis. Sperm capacitation and acrosome reaction. Fertilization and cleavage. Morula and blastocyst.
4. 6. 3. – 10. 3. 2023 <b>General embryology II:</b> Implantation. Differentiation of trophoblast and embryoblast during implantation. Development of fetal membranes: amnion, chorion. Development of placenta. Intraembryonic mesoderm and notochord.
5. 13. 3. – 17. 3. 2023 <b>General embryology III:</b> Embryoblast and germ disc. Stages of human embryonic and fetal development. Congenital malformations and prenatal diagnostics.
6. 20. 3. – 24. 3. 2023 <b>General histology:</b> Tissues – definition, origin and classification. Connective tissues. Connective tissue proper.
7. 27. 3. – 31. 3. 2023 <b>Connective supporting tissues</b> – cartilage and bone. Development of bone tissue (ossification).
8. 3. 4. – 7. 4. 2023 <b>Epithelial tissue.</b> Covering and glandular epithelia. Absorptive, respiratory, and sensory epithelia.

### Practice

1. 13. 2. – 17. 2. 2023 Introduction, organization of practicals. <b>Introduction into histological technique.</b> Tissue processing for light and electron microscopy.
2. 20. 2. – 24. 2. 2023 <b>Cytology I.</b> The cell nucleus and cell organelles (mitochondria, Golgi apparatus, endoplasmic reticulum, ribosomes, lysosomes, peroxisomes). <u>Aids:</u> Atlas of Cytology and Embryology
3. 27. 2. – 3. 3. 2023 <b>Cytology II.</b> Centriole and cytoskeleton (actin and intermediate filaments, microtubules). Cell inclusions. Cell surfaces and intercellular junctions. <u>Aids:</u> Atlas of Cytology and Embryology
4. 6. 3. – 10. 3. 2023 <b>General embryology I.</b> <u>Aids:</u> Set of embryological schemes and pictures (I). <u>Aids:</u> Atlas of Cytology and Embryology
5. 13. 3. – 17. 3. 2023 <b>General embryology II.</b> <u>Aids:</u> Set of embryological schemes and pictures (II). <u>Aids:</u> Atlas of Cytology and Embryology
6. 20. 3. – 24. 3. 2023 <b>General histology.</b> Light microscopy. Basic staining methods in histology (HE, HES, AZAN, impregnation).
7. 27. 3. – 31. 3. 2023 <b>Connective tissue proper.</b> <u>Slides:</u> <i>Funiculus umbilicalis, oesophagus</i> , posterior segment of the eye, <i>lien</i> , aorta.
8. 3. 4. – 7. 4. 2023 <b>Supporting tissue:</b> cartilage and bone. Histogenesis of bone tissue (ossification). <u>Slides:</u> <i>Trachea, auricula</i> , elastic cartilage, lamellar bone, chondrogenic ossification.

9. 10. 4. – 14. 4. 2023 <b>Nervous tissue.</b> Neuron and its processes, classification of neurons. Synapse. Neuroglial cells and sheaths of nerve fibers. Propagation of nerve impulses.	9. 10. 4. – 14. 4. 2023 <b>10. 4. Easter</b> <b>Covering epithelia.</b> <u>Slides:</u> <i>Ren, vesica fellea, trachea, oesophagus, ureter, palpebra</i> , skin from the finger tip.
10. 17. 4. – 21. 4. 2023 <b>Muscle tissue</b> – smooth muscle tissue, skeletal muscle tissue, and cardiac muscle tissue. Myofibrils and mechanism of muscle contraction.	10. 17. 4. – 21. 4. 2023 <b>Glandular epithelium.</b> <u>Slides:</u> <i>Intestinum tenue, pylorus</i> , skin with hair, <i>gl. parotis, gl. submandibularis</i> .
11. 24. 4. – 28. 4. 2023 <b>Blood cell morphology:</b> Erythrocytes, leukocytes and thrombocytes. Differential white cell count. Prenatal and postnatal hematopoiesis. Erythropoiesis, granulopoiesis, thrombopoiesis.	11. 24. 4. – 28. 4. 2023 <b>Nervous tissue:</b> neuron, synapses; neuroglia. <u>Slides:</u> <i>Cortex cerebri, cerebellum, medulla spinalis, ganglion spinale</i> , peripheral nerve; motor end plate – demonstration.
12. 1. 5. – 5. 5. 2023 <b>Microscopic anatomy and embryology.</b> Microscopic structure of the heart and blood vessels.	12. 1. 5. – 5. 5. 2023 <b>1. 5. Labor Day</b> <b>Muscle tissue.</b> <u>Slides:</u> <i>Apex linguae, intestinum crassum</i> , myocardium. <b>Repetition of tissues.</b>
13. 8. 5. – 12. 5. 2023 <b>Development of the heart.</b> Septation of the heart tube. Primitive blood circulation in the embryo. Fetal blood circulation.	13. 8. 5. – 12. 5. 2023 <b>8. 5. Victory Day</b> <b>Blood cells:</b> Erythrocytes, leukocytes. Differential White Cell Count (DWCC). Thrombocytes. <u>Slide:</u> A smear of peripheral blood. Development of blood cells (hematopoiesis) - by teacher's presentation.
14. 16. 5. – 20. 5. 2023 dissections	14. 16. 5. – 20. 5. 2023 dissections
15. 23. 5. – 27. 5. 2023 dissections	15. 23. 5. – 27. 5. 2023 dissections
14. 16. 5. – 20. 5. 2023 Selected lecture	14. 16. 5. – 20. 5. 2023 Repetition, credit.
15. 23. 5. – 27. 5. 2023 dissections	15. 23. 5. – 27. 5. 2023 dissections

Conditions for obtaining credit:

1. Attendance at all practices (100% participation, all absences must be properly excused in IS and substituted).
2. Submission of all protocols (correctly completed forms of protocols signed by teacher).
3. All tests successfully passed (4 partial tests, eventually 1 partial repetition test; in case of failing more partial tests, 2nd repetition test from all topics of that semester will be written at the end of the semester)

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