

Semester 2, 2021/2022

Programme of lectures and practicals in histology and embryology for the 1st year of General medicine (aVL)

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Lectures

1. 14. 2. – 18. 2. 2022 Introduction: Histology – definition, classification and significance. Cytology I: The cell – definition and general characteristics. Concept of the unit membrane.
2. 21. 2. – 25. 2. 2022 Cytology II: Plasma membrane. Cell surfaces and intercellular junctions. Cell cycle, cell division and cell differentiation.
3. 28. 2. – 4. 3. 2022 General embryology I: Human gametes. Meiosis: spermatogenesis and oogenesis. Sperm capacitation and acrosome reaction. Fertilization and cleavage. Morula and blastocyst.
4. 7. 3. – 11. 3. 2022 General embryology II: Implantation. Differentiation of trophoblast and embryoblast during implantation. Development of fetal membranes: amnion, chorion. Development of placenta. Intraembryonic mesoderm and notochord.
5. 14. 3. – 18. 3. 2022 General embryology III: Embryoblast and germ disc. Stages of human embryonic and fetal development. Congenital malformations and prenatal diagnostics.
6. 21. 3. – 25. 3. 2022 General histology: Tissues – definition, origin and classification. Connective tissues. Connective tissue proper.
7. 28. 3. – 1. 4. 2022 Connective supporting tissues – cartilage and bone. Development of bone tissue (ossification).
8. 4. 4. – 8. 4. 2022 Epithelial tissue. Covering and glandular epithelia. Absorptive, respiratory, and sensory epithelia.

Practice

1. 14. 2. – 18. 2. 2022 Introduction, organization of practicals. Introduction into histological technique. Tissue processing for light and electron microscopy.
2. 21. 2. – 25. 2. 2022 Cytology I. The cell nucleus and cell organelles (mitochondria, Golgi apparatus, endoplasmic reticulum, ribosomes, lysosomes, peroxisomes). <u>Aids:</u> Atlas of Cytology and Embryology
3. 28. 2. – 4. 3. 2022 Cytology II. Centriole and cytoskeleton (actin a intermediate filaments, microtubules). Cell inclusions. Cell surfaces and intercellular junctions. <u>Aids:</u> Atlas of Cytology and Embryology.
4. 7. 3. – 11. 3. 2022 General embryology I. <u>Aids:</u> Set of embryological schemes and pictures (I). <u>Aids:</u> Atlas of Cytology and Embryology
5. 14. 3. – 18. 3. 2022 General embryology II. <u>Aids:</u> Set of embryological schemes and pictures (II). <u>Aids:</u> Atlas of Cytology and Embryology
6. 21. 3. – 25. 3. 2022 General histology. Light microscopy. Basic staining methods in histology (HE, HES, AZAN, impregnation).
7. 28. 3. – 1. 4. 2022 Connective tissue <u>proper</u> . <u>Slides:</u> Funiculus umbilicalis, oesophagus, posterior segment of the eye, lien, aorta.
8. 4. 4. – 8. 4. 2022 Supporting tissue: cartilage and bone. Histogenesis of bone tissue (ossification). <u>Slides:</u> Trachea, auricula, elastic cartilage, lamellar bone, chondrogenic ossification.

9. 11. 4. – 15. 4. 2022 Nervous tissue. Neuron and its processes, classification of neurons. Synapse. Neuroglial cells and sheaths of nerve fibers. Propagation of nerve impulses.	9. 11. 4. – 15. 4. 2022 15.4. Good Fri Covering epithelia. <u>Slides:</u> Ren, vesica fellea, trachea, oesophagus, ureter, palpebra, skin from the finger tip.
10. 18. 4. – 22. 4. 2022 Muscle tissue – smooth muscle tissue, skeletal muscle tissue, and cardiac muscle tissue. Myofibrils and mechanism of muscle contraction.	10. 18. 4. – 22. 4. 2022 18.4. Easter Mo Glandular epithelium. <u>Slides:</u> Intestinum tenue, pylorus, skin with hair, gl. parotis, gl. submandibularis.
11. 25. 4. – 29. 4. 2022 Blood cell morphology: Erythrocytes, leukocytes and thrombocytes. Differential white cell count. Prenatal and postnatal hematopoiesis. Erythropoiesis, granulopoiesis, thrombopoiesis.	11. 25. 4. – 29. 4. 2022 Nervous tissue: neuron, synapses; neuroglia. <u>Slides:</u> Cortex cerebri, cerebellum, medulla spinalis, ganglion spinale, peripheral nerve; motor end plate – demonstration.
12. 2. 5. – 6. 5. 2022 Microscopic anatomy and embryology. Microscopic structure of the heart and blood vessels.	12. 2. 5. – 6. 5. 2022 Muscle tissue. <u>Slides:</u> Apex linguae, intestinum crassum, myocardium. Repetition of tissues.
13. 9. 5. – 13. 5. 2022 Development of the heart, septation of the heart tube. Primitive blood circulation in the embryo. Fetal blood circulation.	13. 9. 5. – 13. 5. 2022 Blood cells: 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. 2022 dissections	14. 16. 5. – 20. 5. 2022 dissections
15. 23. 5. – 27. 5. 2022 dissections	15. 23. 5. – 27. 5. 2022 dissections
14. 16. 5. – 20. 5. 2022 Selected lecture	14. 16. 5. – 20. 5. 2022 Repetition, credit.
15. 23. 5. – 27. 5. 2022 dissections	15. 23. 5. – 27. 5. 2022 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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