

ФОРМУЛЯР

УЧЕБНА ПРОГРАМА

# **MEDICAL UNIVERSITY - PLEVEN**

# FACULTY OF MEDICINE

#### DEPARTMENT OF ANATOMY, HISTOLOGY, CYTOLOGY AND BIOLOGY

2019/2020 academic year

SYNOPSIS

### CYTOLOGY AND HISTOLOGY

#### FOR MEDICAL STUDENTS

Разработил:	Одобрил:	Утвърдена:	
Доц. д-р Стефан Трифонов, дм Ръководител катедра /фамилия, длъжност/	Проф. д-р А.Аспарухов, дмн Декан ФМ /фамилия, длъжност/	На Факултетен съвет	Екземпляр № 05
07.09.2019 г/дата, подпис/	2019 г /дата, подпис/	/дата/	Валиден от: 11.09.19

- 1. Subject, purpose and history of the cytology.
- 2. Introduction in cytology. Methods of the cell study. Principles of cytological and histological investigation, cytochemistry, immunohistochemistry and in situ hybridization.
- 3. Methods of cell study preparation of permanent histological slide.
- 4. Methods of cell study microscope and different types of microscopes.
- 5. The cell chemical composition. Hyaloplasm.
- 6. The cell external morphology.
- 7. The cell internal morphology and organization.
- 8. The cell membrane structure and functions. Glycocalyx (cell coat).
- 9. The cell membrane specialized structures of the cell membrane, intercellular junctions.
- 10. Membranous cell organelles endoplasmic reticulum.
- 11. Membranous cell organelles mitochondria.
- 12. Membranous cell organelles Golgi apparatus. Secretory vesicles, coated vesicles.
- 13. Membranous cell organelles lysosomes. Peroxisomes.
- 14. Cell nucleus structure of interphase nucleus: chromatin, nucleolus, nuclear matrix.
- 15. Cell nucleus. Ultrastructural organization: Structure of the nuclear envelope nuclear pores.
- 16. Cell nucleus chromosomes, structure and replication of DNA.
- 17. Nonmembranous cell organelles ribosomes, polyribosomes.
- 18. Nonmembranous cell organelles microtubules and cytofilaments.
- 19. Nonmembranous cell organelles cytocenter.
- 20. Specialized cell organelles. Cell inclusions.
- 21. Cytophysiology vital and mitotic cycle of the cell. Amitosis, mitosis, meiosis.
- 22. Cytophysiology cellular metabolism, transmembrane transport.
- 23. Cytophysiology cellular signaling, cellular reactivity and motility.
- 24. Cytophysiology cellular differentiation, growth, aging and death.
- 25. General histology introduction. Tissues definition, general features, classification.
- 26. Epithelial tissue general features, types of epithelial tissue.
- 27. Epithelial tissue surface epithelium.
- 28. Epithelial tissue glandular epithelium.
- 29. Connective tissue general features and classification.
- 30. Connective tissue connective tissues with non-differentiated intercellular substance.
- 31. Connective tissues connective tissues with fibrous intercellular substance.
- 32. Connective tissues connective tissues with dense intercellular substance.
- 33. Blood and lymph blood and lymph plasma: content, antibodies
- 34. Morphology and function of erythrocytes, leucocytes, thrombocytes.
- 35. Erythropoiesis formation of erythrocytes.
- 36. Leukopoiesis formation of granulocytes and agranulocytes.
- 37. Thrombocytopoiesis formation of thrombocytes.
- 38. Muscle tissue general features. Types of muscle tissue.
- 39. Muscle tissue skeletal muscle tissue. Muscle contraction.
- 40. Muscle tissue smooth and cardiac muscle tissue
- 41. Nerve tissue general features. Neuroganglion cells: External and internal morphology. Neurosecretory cells.
- 42. Nerve fibers and their sheaths. Peripheral nerves.
- 43. Terminal section of nerve cells. Synapses principle of organization, types.
- 44. Neuroglia types and features.

- 45. Receptor and effector nerve endings structure and functions.
- 46. Sex cells female sex cells.
- 47. Sex cells male sex cells.
- 48. Subject, tasks and methods of general embryology.
- 49. Spermato- and ovogenesis. Ovulation
- 50. Fertilization.
- 51. Segmentation, blastogenesis.
- 52. Cyclic changes in uterine mucosa.
- 53. Implantation.
- 54. Formation of germ layers and axial organs.
- 55. Derivatives of germ layers. Disturbances in the development mutations
- 56. Formation and development of embryonic envelopes.
- 57. Placentation. Structure of the placenta. Umbilical cord.
- 58. Fetal blood circulation.
- 59. Teratology teratogenic factors.

#### **RECOMMENDED LITERATURE**

- 1. M. H. Ross, W. Pawlina. Histology : a text and atlas with correlated cell and molecular biology. 7th ed., Philadelphia: Wolters Kluwer/Lippincott Williams & Wilkins Health, 2016.
- 2. A. L. Mescher (editor). Junqueira's basic histology: text and atlas. 14th ed., New York: McGraw-Hill Education, 2016.
- 3. T.W. Sadler. Langman's medical embryology. 13th ed., Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins, 2014.
- 4. Gary C. Schoenwolf, Steven B. Bleyl, Philip R. Brauer, Philippa H. Francis-West. Larsen's human embryology. 5th ed., Philadelphia, PA: Elsevier/Churchill Livingstone, 2015.
- 5. Leslie P. Gartner. Color Atlas and Text of Histology. 7th ed., Wolters Kluwer Health/Lippincott Williams & Wilkins, 2017.

September 2019