Odessa National Medical University
Faculty of Medicine №1
Department of Histology, Cytology and Embryology

Syllabus of the course
Histology, cytology and embryology

Amount	6,5 ECTS credits,194 hours
Semester, year of study	1st and 2nd semester of the first year of study
Days, time, place	Monday to Friday from 08:00 to 18:00 The main building of ONMedU (Odessa, Olgievskaya Street, 4b): lecture halls № 1, 2, 3 and classrooms of the Department of Histology
Teacher (s)	Tiron Oksana Ivanivna 0672827333 chekina.o@ukr.net Kuvshinova Irina Ivanovna 0634161124 Irinakuvshinova.2000@gmail.com Stetsenko Alina Vyacheslavivna 0954685386 alinatod2012@gmail.com Breus Volodymyr Yevhenovych 0675564787 breusve@ukr.net Markova Olena Olehivna 0682544959 alenushkamarkova71@gmail.com Yanchenko Natalia Vasylivna 0677041100 yanchenko72@ukr.net Lyashevska Oleksandra Oleksandrivna 0663213677 alexandra.lyashevskaya@gmail.com Tolochko Alla Vyacheslavivna 0937462530 allys9odessa@gmail.com Chernezhenko Karina Andreevna 0669827875 Chekarina52@gmail.com Bondarchuk-Migunova Oleksandra Oleksandrivna 0930004379 alex.bo1710@gmail.com Moshina Valeria Valeriyivna 0730219477 Moshinavaleriia89@ukr.net
Contact phone	(048)7317059, (048)7123118
E-mail	histology_odessa@ukr.net , oksana.tiron@onmedu.edu.ua
Workplace	The main building of ONMedU Odessa, Olgievskaya Street, 4b
Consultations	Monday, Tuesday, Wednesday: 1 shift - 14.00 -16.00, 2nd shift - 10.00 - 12.00

COMMUNICATION

Communication with students is carried out through the specified e-mail addresses and telephone numbers of teachers, the department's Facebook page "Department of Histology, Cytology and Embryology ONMedU", online platform Zoom, Microsoft Teams.

COURSE ANNOTATION

The subject of the discipline is microscopic and ultramicroscopic structure of cells, tissues and organs of the human body.

Prerequisites: Histology as a discipline is based on the study of anatomy, medical biology, chemistry, biophysics, Latin and integrates with these disciplines.

Postrequisites: Pathological anatomy, pathological physiology, immunology, ophthalmology, otolaryngology, obstetrics and gynecology, endocrinology, neurology, neurosurgery and other clinical disciplines.

The aim of the discipline "Histology, cytology and embryology" is to study the microscopic and ultramicroscopic structure of the structures of the human body, their development and changes in various living conditions.

COURSE DESCRIPTION

Types of classes according to the curriculum are:

A) lectures (40 hours);

B) practical and seminar classes (116 hours);

C) independent work of students (38 hours).

The content of the discipline

Subsection 1

Topic 1. Introduction to the course histology, cytology and embryology. Microscopes, microscopic devices. Histological technique

Topic 2. Histological technique. Research methods in histology

Topic 3. Cytology. General organization of cells. Plasmolema. Intercellular contacts. Cytoplasm. Cell metabolism. Synthetic cell apparatus. Catabolism system

Topic 4. Cytology. Cytoplasm. Cytoskeleton. Core. Cell reproduction. Cell cycle. Mitosis. Differentiation. Aging. Cell death

Topic 5. General embryology. Sources of tissue development

Topic 6. The concept of tissue. Epithelium. Types of simple epithelium

Topic 7. Stratified and glandular epithelium

Topic 8. Tissues of the internal environment. Blood. Erythrocytes. Platelets. Plasma

Topic 9. Blood. Granulocytes. Agranulocytes. Lymph.

Topic 10. Embryonic and postembryonic hemocytopoiesis

Subsection 2

Topic 11. Tissues of internal environment. Connective tissue. Cells of the loose connective tissue.

Topic 12. Intercellular substance. Dense connective tissue. Connective tissue with special properties

Topic 13. Skeletal tissue. Cartilage. Chondrohistogenesis

Topic 14. Skeletal tissue. Bone. Structure.

Topic 15. Osteohistogenesis, bone growth and remodeling

Topic 16. Muscle tissue. Skeletal muscle tissue

Topic 17. Muscle tissue. Cardiac and smooth muscle tissue.

Topic 18. Nerve tissue. Neurons. Neuroglia

Topic 19. Nerve tissue. Nerve fibers and endings

Subsection 3

Topic 20. Nervous system. Spinal cord. Spinal ganglia.
Topic 21. Nervous system. Cerebral cortex, cerebellum
Topic 22. Sensory organs. The organ of vision.
Topic 23. Sensory organs. Organ of hearing and equilibrium
Topic 24. Embryogenesis of the nervous system and sensory organs
Topic 25. Cardiovascular system. Heart. Arteries
Topic 26. Cardiovascular system. Veins. Microvascular bed
Topic 27. Embryogenesis of the cardiovascular system
Topic 28. Central organs of hematopoiesis and immune defense
Topic 29. Peripheral organs of hematopoiesis and immune defense

Subsection 4

Topic 30. Central organs of the endocrine system: hypothalamus, pituitary, pineal gland
Topic 31. Peripheral organs of the endocrine system: thyroid, parathyroid, adrenal glands
Topic 32. Urinary system. Histophysiology of cortical and juxtamedullary nephrons. Endocrine apparatus of the kidney. Urinary tract
Topic 33. Male reproductive system. Spermatogenesis. Testicles. Additional glands of the male reproductive system
Topic 34. Female reproductive system. Ovaries, ovogenesis
Topic 35. Female reproductive system. Ovarian-menstrual cycle.
Oviducts, uterus, vagina
Topic 36. Medical embryology. The early stages of human embryogenesis.
Topic 37. Medical embryology. Early stages of human development

Subsection 5

Topic 38. Digestive system. Mouth. General principles of the structure of the mucous membrane.
Topic 39. The structure of the enamel, The structure of dentine, cementum.
Topic 40. The structure of the pulp and supporting apparatus of the tooth
Topic 41. Development and eruption of teeth-1
Topic 42. Development of teeth - 2
Topic 43. Digestive tube. Pharynx, esophagus, stomach
Topic 44. Digestive tube. Small and large intestine
Topic 45. Digestive glands. Salivary glands. Liver. Pancreas
Topic 46. Respiratory system. Respiratory pathways. Olfactory system
Topic 47. Respiratory system. Respiratory apparatus
Topic 48. Development of the digestive system. Derivatives of the primary intestine
Topic 49. Skin and its derivatives

LIST OF RECOMMENDED LITERATURE

MAIN LITERATURE

1. Bobrysheva I. V. Histology, cytology, embryology / I. V.Bobrysheva, S. A.

Kashchenko. – Lugansk. : “Knoledge”, 2011. – 437 p.
2. Arnautova L.V. Histology f course of lectures /L. V. Arnautova, O. A. Ulyantseva. – Odessa. : The Odessa National Medical University, 2011. – 216 p.

ADDITIONAL LITERATURE

1.Ross M.H., Pawlina W. Histology: a text and atlas6th edition. - Lippincott Williams & Wilkins, 2011. - 996 p.

2.Kierszenbaum A. L. Histology and cell biology: an introduction to pathology3rd edition. -A. L. Kierszenbaum. – Elsevier, 2011. – 720 p.

EVALUATION

Current control, control of practical skills and theoretical knowledge

Evaluation of the each topic success at the Histology is performed by a traditional 4-point scale.

During the course, there are 5 controls of practical skills and theoretical knowledge. Those students who do not have academic debt with the topics and the average score of at least 3.00 for current academic activities are allowed to take the final control. At the end of the study of the discipline, the curriculum provides the final MCQ control - KROK1, the admission to which is the absence of academic debt in the discipline.

At the end of the course, the current performance is calculated as the average current score obtained by the student on a traditional scale. At the last practical lesson, the teacher is obliged to announce to students the results of their current academic performance and academic debt.

Final control

The discipline "Histology, Cytology and Embryology" has the final control of knowledge - exam.

The grade for the discipline is 50% of the current performance (arithmetic means of all current student grades) and 50% - the grade on the exam.

To evaluate the discipline on a 4-point traditional (national) scale, the average score is primarily calculated as the arithmetic means of the two components:

1) the average current score as the arithmetic of all current marks (calculated as a number rounded to the nearest hundredth);

2) traditional grade for the exam.

The average score for the discipline is converted to the traditional grade of a 4-point scale and is revealed as the ratio of this arithmetic means to the percentage of mastering the necessary knowledge in the subject.

Average score for the discipline	The ratio of the average score for the discipline received by the student to the maximum possible value of this indicator	Score from discipline on a 4-point scale (traditional assessment)
4,45 – 5,0	90-100%	5

3,75 – 4,44	75-89%	4
3,0 – 3,74	60-74%	3

COURSE POLICY

Deadline and retake policy

- time for working off of academic debt for domestic students - Monday, Tuesday, Wednesday (from 14.00-16.00); English-speaking students - Monday, Tuesday, Wednesday (10.00-12.00)
- if the student has a valid reason for missing the lesson (as evidenced by the relevant documents), he must provide a copy of the document confirming the valid reason for the absence (donor, competitions, conferences, etc.) and fill in the album pages according to the lesson topic. If a student wants to get a grade for a missed lesson, he must answer to the duty teacher and fill in the album pages according to the topic of the lesson.

• a necessary condition for the student's admission to take/retake the final control of practical knowledge is the absence of academic debt, ie no "nb" and a grade point average of 3.0 from the list of topics included in the control of theoretical knowledge. As well as correctly filled tables and correctly drawn pictures in the album for practical classes. Only in the case whether a student taking control of practical skills, he is allowed to take / retake the final control of theoretical knowledge.

Academic Integrity Policy

Observance of academic integrity by students of education provides:

• independent performance of educational tasks, tasks of current and final control of learning outcomes (for persons with special educational needs this requirement is applied taking into account their individual needs and opportunities);

• links to sources of information in case of using ideas, developments, statements, information.

Unacceptable for participants in the educational process is using prohibited activities of prohibited aids or technical means (cheat sheets, notes, head- (ear-) phones, phones, smartphones, tablets, etc.).

Attendance and lateness policy:

All practical classes and lectures of the course are mandatory. In case of absence, the student is obliged to complete the lecture / practical lesson in the allotted time. Delays are unacceptable. A student who is not in the classroom at the beginning of the lecture / practical lesson automatically receives a "NB".

Mobile devices:

Using technical aids (headphones, telephones, smartphones, smartwatches, tablets, etc.) during the controls is unacceptable.

Audience behavior:

It is forbidden to:

- Using of alcohol, drugs, psychotropic substances or their analogs;
- Smoking;
- Distribution and use of narcotic substances;
- Behavior that does not comply with generally accepted norms;
- Stay in educational and office premises after school hours;
  - Break the silence during classes;
  - Gamble;
  - Commit immoral acts;
  - Stay in a hat (except for a medical cap).
  - During practical classes and lectures, students must follow certain disciplinary rules:
  - It is forbidden to be late for classes;
  - When the teacher enters as a sign of greeting, students must stand up;
  - Third-party conversations (including on a mobile phone) or other noise that interferes with the conduct of classes are not allowed;
  - To go out and move around the classroom during class is allowed only with the permission of the teacher.