

**COURSE SYLLABUS**  
**HISTOLOGY, CYTOLOGY, AND EMBRYOLOGY**

Field of Study: <b>222 «Medicine»</b>	Credit Load: <b>4.5 ECTS credits (135 hours)</b>
Educational and Professional Programme in <b>Medicine</b>	Teaching Activities: <b>Lectures, Seminars, Consultations</b>
Course Component Code: <b>MC 08</b>	Final Assessment: <b>Exam</b>
Higher Education Level: <b>Second (Master's) Degree Level</b>	Prerequisites: <b>course of Biology of general education in high school</b>
Study Mode: <b>Full-time</b>	
Year of Study: <b>2</b>	
Semester: <b>3 (autumn)</b>	
Course Type: <b>Mandatory</b>	
Academic Year: <b>2025-2026</b>	

Department/Unit: **Department of Histology, Cytology, and Embryology**, 4 Nauky Ave., Academic and Laboratory Building, 3-d Floor.

Course Supervisor: Professor **Olga BOIAGINA**,  
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Course Page at the KhNMU Distance Learning System (Moodle):  
<https://distance.knmu.edu.ua/course/view.php?id=6489>

**COURSE OVERVIEW**

“Histology, Cytology, and Embryology” studies the microscopic and ultramicroscopic structure of cells, tissues, and organs, considering their development. The course aims to teach students to perceive the human body as an organized system of independent structures. These structures are integrated by regulatory systems into an unified system. Students learn to distinguish normal structures from pathologically changed ones. They also study age-related morphological changes in the structure of human organs.

**COURSE AIM:** to teach students to identify the structural components of cells, tissues, and human organs on histological specimens under normal conditions and at various stages of embryogenesis.

**LEARNING OUTCOMES:**

- Be able to identify the structural components of tissues and human organs on histological specimens at various stages of embryogenesis.
- Be able to recognize the main types of human tissues and organs on histological specimens.
- Explain the patterns of histogenesis and organogenesis.
- Explain the microscopic and ultramicroscopic features of cells, tissues, and organs under normal conditions.

**COURSE CONTENT**

**Lecture Topics (20 hours):**

1. Cardiovascular System.
2. Lymphoid System.
3. Endocrine System.
4. Digestive System (1): Development of the Digestive Tube. Oral Cavity.
5. Digestive System (2): Esophagus, Stomach, Small and Large Intestines. Pancreas, Liver, Gallbladder.
6. Respiratory System.
7. Urinary System.
8. Male Reproductive System.

9. Female Reproductive System (1): Embryogenesis of the Female Reproductive System. Ovary. Uterus, Fallopian Tubes, Vagina.
10. Female Reproductive System (2): Fertilization. Implantation. Development and Structure of the Placenta. Accessory Organs: Amnion, Chorion, Umbilical Cord.

**Practical Class Topics (50 hours):**

1. Cardiovascular System.
2. Lymphoid System.
3. Endocrine System.
4. Digestive System (1): Organs of the Oral Cavity. Structure and Development of Teeth.
5. Digestive System (2): Esophagus, Stomach, Intestines.
6. Digestive System (3): Major Digestive Glands.
7. Respiratory System.
8. Urinary System.
9. Male Reproductive System.
10. Female Reproductive System (1): Embryogenesis of the Female Reproductive System. Ovary. Oogenesis. Folliculogenesis. Ovarian Cycle.
11. Female Reproductive System (2): Uterus, Fallopian Tubes, Vagina. Menstrual Cycle. Mammary Glands.
12. Female Reproductive System (3): Implantation. Placenta. Accessory Organs.
13. Final Control 2: «Special Histology»

**Topics for Student's Independent Work (65 hours):**

1. Embryogenesis of the heart and vascular system.
2. Gut-associated lymphoid tissue (GALT).
3. Thymus as the central organ of T-Lymphopoiesis. Differentiation of T-cells in the thymus.
4. Development of endocrine glands.
5. Diffuse endocrine system (APUD System).
6. Development of the face and organs of the oral cavity.
7. Embryogenesis of the digestive tube organs.
8. Bile ducts. Development and structural features of the gallbladder.
9. Embryogenesis of the respiratory system organs.
10. Embryogenesis of the human urinary system.
11. Connection of the male reproductive organs with the hypothalamic–pituitary system. Mechanisms of regulation of generative and endocrine functions of the male gonads.
12. Functional features and age-related changes of the male reproductive organs.
13. Features of ovarian embryogenesis.
14. Extraembryonic organs of humans.

Student's Independent Work (SIW) is aimed at deepening and consolidating the theoretical knowledge acquired during classroom learning and contributes to the development of professional competencies. The results of SIW are subject to being evaluated and included in the final knowledge assessment.

**Consultations** are held online and require prior registration on the course page at the Distance Learning Platform Moodle.

**Teaching Methods:** lecture, narrative explanation, working on situational problems and tests tasks.

**ASSESSMENT**

**Current Learning Activity (CLA).** Student performance is assessed in accordance with the Instruction on Assessment of Student Academic Activities at KhNMU

([https://knmu.edu.ua/doc\\_block\\_type/instrukcziyi-navchalnogo-proczesu/](https://knmu.edu.ua/doc_block_type/instrukcziyi-navchalnogo-proczesu/)). The mark for a Practical Class or Final Control ranges from 2 to 5 points. Submission of homework assignments late without valid reasons results in a reduction of the mark proportionally to the time delay. Homework assignments are checked by teacher within 24 hours. Marks are put in the electronic journal. Unsatisfactory marks should be reworked in accordance with the KhNMU Regulations on Reworking Bad Marks and Missed Classes ([https://knmu.edu.ua/wp-content/uploads/2021/05/pol\\_por-vidprac-zaniat.pdf](https://knmu.edu.ua/wp-content/uploads/2021/05/pol_por-vidprac-zaniat.pdf)).

At the end of the semester, the average semester mark is converted into a multi-point score (70–120 points) according to Table 1 of the Instruction on Assessment of Student Academic Activities at KhNMU (see above). The arithmetic mean of the CAA for both semesters makes up the **Overall Academic Activity (OAA)**.

**Individual Assignments.** Student's Individual Assignments (hereinafter – SIA) are not a mandatory component of the study. However, they may be completed at the student's choice and assessed in ECTS points (no more than 10), which are added to the total points earned for Current Academic Activity. The list of individual assignments, approved by the annual Department Meeting, includes: 1) presentation of reports at student conferences; 2) taking part at Histology contests, and 3) preparation of scientific reviews with presentations checked for plagiarism. The number of points assigned for their completion could be added to the Total Score as bonus points (no more than 10).

**Final Assessment:** Histology Exam eligibility requires obtaining 70 points in the Overall Academic Activity (OAA). The Exam is scored from 50 to 80 points.

**Total Score (TS).**  $TS = OAA + SIA + Exam$  points.

**Appealing Final Assessment Results.** The results of the Final Assessment may be appealed following the procedure established by KhNMU ([https://knmu.edu.ua/wp-content/uploads/2021/05/polog\\_apel\\_kontrol.pdf](https://knmu.edu.ua/wp-content/uploads/2021/05/polog_apel_kontrol.pdf)).

## COURSE POLICIES

**Course Recommendations:** Students are encouraged to actively participate in all class activities, spend 1–2 hours daily on homework assignments and proper preparation for practical classes. They should ask questions during classes, attend teacher's consultations, submit homework assignments on time, and accomplish all assessment tasks.

**Class Attendance:** Students are required to attend all lectures and practical sessions. During off-line practical classes a white medical coat must be worn. Students who arrive more than 5 minutes late may not be allowed to take part at the class. Missed classes should be reworked following the KhNMU Regulations on Reworking Bad Marks and Missed Classes ([https://knmu.edu.ua/wp-content/uploads/2021/05/pol\\_por-vidprac-zaniat.pdf](https://knmu.edu.ua/wp-content/uploads/2021/05/pol_por-vidprac-zaniat.pdf)).

**Academic Honesty:** KhNMU upholds a zero-tolerance approach to academic dishonesty. Any violations of academic honesty will be addressed by the university in accordance with the established KhNMU procedures, including the application of appropriate disciplinary actions. ([https://knmu.edu.ua/wp-content/uploads/2021/05/polog\\_ad-1.pdf](https://knmu.edu.ua/wp-content/uploads/2021/05/polog_ad-1.pdf)).

**Use of Electronic Devices and AI Tools:** Students may use electronic devices and AI tools only after teacher's approval.

**Policy for Students with Special Educational Needs:** Students with special educational needs should contact their teacher to design an individualized educational plan.

**Teacher's Response Time:** The teacher will respond to student's inquiries within 24 hours.

### Technical Requirements for the Course:

Students are expected to have:

- Access to a computer, laptop, tablet, or smartphone.
- A corporate Google account with a personal photo.
- Skills in using Google Workspace applications (Google Meet, Docs, Sheets, Slides, Forms) and Moodle.

**Technical Support:** Assistance with technical issues related to the course is available through the designated support channels: ACY ([ev.shevtsov@knmu.edu.ua](mailto:ev.shevtsov@knmu.edu.ua)), Google ([tehotdelknmu@gmail.com](mailto:tehotdelknmu@gmail.com)), Moodle ([al.korol@knmu.edu.ua](mailto:al.korol@knmu.edu.ua))

### **SUGGESTED READING RESOURCES**

1. Ross M.H., Pawlina W. Histology. A Text and Atlas. – Wolters Kluwer, 9th North American Edition, 2023. – 1104 p.
2. Junqueira's Basic Histology: Text and Atlas. Anthony L. Mescher. – McGraw-Hill Education, 17th Edition, 2023. – 576 p.
3. Kierszenbaum A.L., Tres L.L. Histology and Cell Biology. – Elsevier, 6th Edition, 2025. – 824 p.
4. Gartner & Hiatt's Atlas and Text of Histology. – Wolters Kluwer, 8th North American Edition, 2022. – 648 p.
5. Geraldine O'Dowd, Sarah Bell, Sylvia Wright. Wheater's Functional Histology. – Elsevier, 7th Edition, 2023. – 480 p.

Head of the Histology, Cytology,  
and Embryology Department

Professor Olga BOIAGINA