

MINISTRY OF EDUCATION OF THE AZERBAIJAN REPUBLIC

KHAZAR UNIVERSITY

SCHOOL OF SCIENCE AND ENGINEERING

DEPARTMENT OF LIFE SCIENCES

CYTOLOGY AND HISTOLOGY

SYLLABUS

Academic year and semester
Fall semester of the 2026/27 academic year

Teacher: Cand. Biol. Sci., Mehdi Ali

Approved by:

Head of Department:
Dr. J.M. Eldarova

General Information	Course title, code, and credits		Cytology and Histology, 3 credits
	Department		Life Sciences
	Program (Bachelor/Master)		Bachelor
	Semester		Fall semester of the 2026/27 academic year
	Teacher		Cand. Biol.Sci. Mehdi Ali
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	Lecture room/Schedule		
	Consultation hours		Will be arranged after agreement with students
Prerequisites	General Biology, General Chemistry		
Language of instruction	English		
Course type	Compulsory elective		
Textbooks and additional sources	Main textbooks: 1. Mescher, A. L. (2016). <i>Junqueira's basic histology: Text and atlas</i> (14th ed.). McGraw-Hill Education. 2. Kühnel, W. (2003). <i>Colour atlas of cytology, histology, and microscopic anatomy</i> (4th ed., rev. and enl.). Thieme.		
Websites of course	https://histology.leeds.ac.uk		
	https://www.histologyguide.org		
	https://secondlook.med.umich.edu/histology		
Teaching Methods	Lecture		x
	Group discussion		x
	Seminar		x
Assessment	Components	Date/Deadline	Percentage (%)
	Laboratory (Activity)	During the semester	10
	Assignments and quizzes 1 & 2	During the semester	10
	Individual presentation	During the semester	5
	Attendance	During the semester	5
	Midterm exam		30
	Final exam		40
	Total		100
Description of the course	Cytology and Histology is a fundamental course designed to provide students with a systematic understanding of the microscopic structure, organisation, functions and biological significance of cells, tissues and organs. The course introduces cytology and histology as scientific disciplines, including their general principles and basic research methods. The course examines cell structure and function and their importance as the fundamental unit of life. Students study the main tissue types, including epithelial, connective, blood, cartilage, bone, muscle, and nervous tissues, with particular attention to the relationship between their microscopic structure and biological functions. The course also introduces the histological organisation of the major organ systems of the human body. These include the cardiovascular, immune and lymphoid, digestive, endocrine, integumentary, respiratory, urinary and reproductive systems, as well as the organs of special sense. Emphasis is placed on understanding the structural organisation of cells, tissues and organs and on recognising the relationship between microscopic morphology and physiological function. Throughout the course, students develop basic skills in observing and interpreting histological structures using microscopic images, histological preparations, and other relevant educational materials. In accordance with Khazar University regulations, GAI tools may be used as supportive learning tools for purposes such as explaining concepts, organising information, generating practice questions, and checking grammar. However, GAI must not replace students' independent thinking or intellectual work. Any use of GAI must be clearly disclosed, and students remain responsible for verifying the accuracy and reliability of information obtained through such tools. The use of GAI is prohibited during examinations and other in-class assessment tasks.		

Goal of the course	The goal of the course is to provide students with fundamental knowledge of the microscopic structure, organisation and functions of cells, tissues and organs, and to develop an understanding of the relationship between their structure and biological functions. The course aims to introduce students to the basic principles and methods of cytology and histology and to develop their ability to recognise, analyse and interpret the microscopic organisation of the major tissues and organ systems of the human body.
Learning Outcomes	By the end of the course, students should be able to: – Explain the scope, fundamental principles and basic research methods of cytology and histology. – Describe the general structure, functions and biological significance of the cell as the fundamental unit of life. – Identify and describe the microscopic structure and functions of epithelial, connective, cartilage, bone, muscle and nervous tissues. – Explain the composition and functions of blood and the basic processes of haemopoiesis. – Describe and interpret the histological organisation of the cardiovascular system. – Recognise and analyse the microscopic structure and functional organisation of the immune system and lymphoid organs. – Explain the histological structure and organisation of the digestive system and its associated organs. – Describe the microscopic organisation and functions of the endocrine system and endocrine glands. – Identify and explain the histological structure of the skin and its derivatives. – Describe and analyse the microscopic organisation of the respiratory system. – Explain the histological structure and functional organisation of the urinary and reproductive systems. – Describe the microscopic structure of the organs of special sense. – Recognise and interpret basic histological structures using microscopic preparations, histological images and other relevant educational materials. – Analyse the relationship between the microscopic structure of cells, tissues and organs and their biological functions. – Use generative artificial intelligence tools responsibly as supportive learning tools, where permitted, while maintaining academic integrity, independent thinking, transparency and responsibility for verifying the accuracy of information.
Rules (Teaching Policy and Conduct)	Course Organization – General information related to the subject will be delivered to students during the lectures. – New topics will be explained with the use of visual aids (PPT and video files). – Before the midterm and final exams, students' level of understanding will be assessed through quizzes. – During seminar sessions, students' grasp of previous topics will be evaluated in each class through oral and written questioning; at the end of the semester, a cumulative grade will be given (Activity). – Throughout the semester, it is mandatory to deliver individual presentations on assigned topics. The presentation time, including discussion at the end, should not exceed 15 minutes. The issues and rules of presentations will be explained in more detail during the course. General rules Attendance Participation in all classes is mandatory. If students miss classes for specific reasons (e.g., illness, family circumstances), they must submit the relevant information to the faculty dean's

	office. Students who miss more than 25% of classes are not allowed to take the exam. Lateness A student who arrives more than 10 minutes after the scheduled start time is considered absent. Nevertheless, the student may still join the class session. Quizzes If a student misses a quiz for reasons previously reported to the instructor and the dean's office, they are permitted to take the quiz in the following week. Exams The faculty administration decides all matters related to student participation in exams or absence from them. Missing an exam is permitted only with the dean's approval. Absence due to public activities is not accepted as an excuse. Exams must be cumulative. The topics for the midterm and final exams are given to students in advance. In the final exam, most questions are based on the material covered after the midterm. Completion of the Course A student who scores 60% or higher is considered to have completed the course. Otherwise, the student must retake it. Violation of Exam Rules If existing rules are violated during exams (such as attempts to cheat, cheating, disrupting the exam process, or other unlawful actions), the student's exam paper is annulled. Classroom Conduct Students must do everything possible to maintain an appropriate academic environment during class. Unauthorised talking, unnecessary movements, and other inappropriate behaviour are strictly prohibited. Students must actively participate in class, ask questions when necessary, and refrain from interrupting discussions.
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Disrupting the class process or violating ethical standards, unauthorised discussions, and the use of mobile phones during class are strictly prohibited.

Schedule (subject to change)			
Week	Date/Day	Topics	Textbooks/Assignments
1.	15.09.2026	Topic No. 1. Cytology and Histology as Sciences: Their General Principles and Research Methods	Leading textbook: Chapter 1. Histology & Its Methods of Study, pp. 1–16
2.	22.09.2026	Topic No. 2. The General Functions, Structure and Importance of the Cell in Life	Leading textbook: Chapter 2. The Cytoplasm, pp. 17–52; Chapter 3. The Nucleus, pp. 53–70
3.	29.09.2026	Topic No. 3. Epithelial Tissues	Leading textbook: Chapter 4. Epithelial Tissue, pp. 71–93
4.	06.10.2025	Topic No. 4. Connective Tissues Proper	Leading textbook: Chapter 5. Connective Tissue, pp. 96–120
5.	13.10.2026	Topic No. 5 (Quiz 1). Blood and Haemopoiesis; Histological Structure of the Cardiovascular System	Leading textbook: Chapter 11. The Circulatory System, pp. 215–235; Chapter 12. Blood, pp. 237–253; Chapter 13. Hematopoiesis, pp. 254–265
6.	20.10.2026	Topic No. 6. Bone and Cartilage	Leading textbook: Chapter 7. Cartilage, pp. 129–136; Chapter 8. Bone, pp. 138–159
7.	27.10.2026	Topic No. 7. Muscle Tissues	Leading textbook: Chapter 10. Muscle Tissue, pp. 193–214
8.	03.11.2026	Topic No. 8. Nervous Tissue	Leading textbook: Chapter 9. Nerve Tissue & the Nervous System, pp. 161–191
Midterm Exam			
9.	10.11.2026	Topic No. 9. The Immune System and Lymphoid Organs	Leading textbook: Chapter 14. The Immune System & Lymphoid Organs, pp. 267–294

10.	17.11.2026	Topic No. 10. The Digestive System and the Structure of Associated Organs	<i>Leading textbook:</i> Chapter 15. Digestive Tract, pp. 295–328; Chapter 16. Organs Associated with the Digestive Tract, pp. 329–348
11.	24.11.2026	Topic No. 11. The Endocrine System and Endocrine Glands	<i>Leading textbook:</i> Chapter 20. Endocrine Glands, pp. 413–437
12.	01.12.2026	Topic No. 12. The Skin and Its Derivatives	<i>Leading textbook:</i> Chapter 18. Skin, pp. 371–391
13.	08.12.2026	Topic No. 13. The Respiratory System	<i>Leading textbook:</i> Chapter 17. The Respiratory System, pp. 349–369
14.	15.12.2026	Topic No. 14 (Quiz 2). The Urinary and Reproductive Systems	<i>Leading textbook:</i> Chapter 19. The Urinary System, pp. 393–412; Chapter 21. The Male Reproductive System, pp. 439–459; Chapter 22. The Female Reproductive System, pp. 460–489
15	22.12.2026	Topic No. 15. The Structure of the Sense Organs	<i>Leading textbook:</i> Chapter 23. The Eye & Ear: Special Sense Organs, pp. 490–522
<u>Final exam</u>			

This curriculum provides complete information about the subject, and any changes will be announced in advance.